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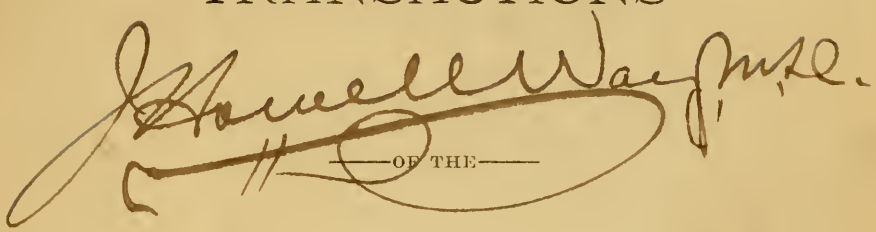

—OF THE—

THIRTY-FIFTH ANNUAL SESSION

DIVISION OF HEALTH SCIENCES LIBRARY

—OF—

THE MEDICAL SOCIETY

—OF THE—

STATE OF NORTH CAROLINA,

10233

HELD AT FAYETTEVILLE, MAY 8—11, 1888.

Medical Society of the State of North Carolina.

OFFICERS and COMMITTEES for Year 1888-'9.

President:

DR. W. T. ENNETT, Burgaw.

Vice-Presidents:

DR. W. J. JONES, Goldsboro.
" S. W. STEVENSON, Mooresville.
" GEO. W. LONG, Graham.

Secretary:

DR. JULIAN M. BAKER, Tarborough.

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DR. C. M. POOLE, Salisbury.

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Committee on Publication:

DR. T. F. WOOD, Wilmington.
" G. G. THOMAS, "
" J. M. BAKER, Tarborough.
" W. W. LANE, Wilmington.

Delegates to American Medical Association:

DR. GEO. W. GRAHAM, Charlotte.
" S. WESTRAY BATTLE, Asheville.
" J. M. COVINGTON, Rockingham,
" ROBT. BREVARD, Charlotte.
" S. S. SATCHWELL, Rocky Point.
" R. A. WHITAKER, Trenton.
DR. R. H. LEWIS, Raleigh.
" W. L. CRUMP, South River.
" EUGENE GRISSOM, Raleigh.
" R. S. YOUNG, Concord.
" K. M. FERGUSON, Cameron.
" J. T. NICHOLSON, Bath.

Delegates to Virginia Medical Association:

DR. JOHN WHITEHEAD, Salisbury. DR. GEO. A. FOOTE, Warrenton.
DR. HENRY H. DODSON, Milton.

Delegates to South Carolina Medical Society:

DR. G. G. THOMAS, Wilmington. DR. T. F. MEISENHEIMER, Morven.
DR. P. B. BARRINGER, Davidson College.

Obituary Committee:

DR. S. S. SATCHWELL, Rocky Point. W. H. H. COBB, Goldsboro.
DR. GEO. F. LUCAS, Cedar Dale.

Committee on Pittman Prize:

DR. P. E. HINES, Raleigh. DR. R. H. LEWIS, Raleigh.
DR. HUBERT HAYWOOD, Raleigh.

Committee on "Duffy Prize:"

DR. J. J. SUMMERELL, Salisbury. DR. JOHN WHITEHEAD, Salisbury.
DR. W. P. BEALL, Greensboro.

Delegates to American Public Health Association:

DR. T. F. WOOD, Wilmington. DR. JNO. McDONALD, Washington.
DR. J. H. TUCKER, Henderson.

LIST OF MEMBERS

In the Order in which they signed Constitution.

(Those marked * were present at the meeting held in Fayetteville, May, 1888.)

[NOTE.—Any person noting any errors or omissions in this roster, will confer a favor if they will write a full correction of such mistakes to the Secretary of the Society at Tarboro, N. C., or the Editors of the NORTH CAROLINA MEDICAL JOURNAL at Wilmington, N. C. PUBLICATION COMMITTEE.]

NAME.	P. O. ADDRESS.	Signed Constitution.
N J Pittman	Tarboro	1850
*S S Satchwell	Rocky Point	1850
Robt Gibbon	Charlotte	1851
W G Thomas	Wilmington	1852
*A B Pierce	Weldon	1852
Allman Holmes	Clinton	1852
E A Anderson	Wilmington	1852
J J Summerell	Salisbury	1855
Peter E Hines	Raleigh	1855
J G Ramsay	Rowan Mills	1855
R H Winborne	Edenton	1857
*Geo A Foote	Warrenton	1858
Eugene Grissom	Raleigh	1859
R L Payne	Lexington	1859
F M Rountree	Kinston	1859
*W J Jones	Goldsboro	1860
Chas J O'Hagan	Greenville	1860
J W Jones	Tarboro	1860
*J K Ruffin	Wilson	1860
Wm R Wood	Scotland Neck	1867
P A Barrier	Mt Pleasant	1867
*Thos F Wood	Wilmington	1867
Geo L Kirby	Goldsboro	1867
P S Peteway	Enfield	1867
J F Shaffner	Salem	1867
*W T Cheatham	Henderson	1868
Elisha Porter	Rocky Point	1868
F J Haywood	Raleigh	1868
B P Alston	Henderson	1868
G G Smith	Concord	1869
*D N Patterson	Mangum	1869
L L Staton	Tarboro	1869
*H T Bahnson	Salem	1869
W W Lane	Wilmington	1870
Chas Duffy, Jr	Newbern	1870
Wm J Love	Wilmington	1870
*H O Hyatt	Kinston	1870
T C Powell	Rocky Mt	1867
Jas McKee	Raleigh	1870
Willis Alston	Littleton	1870
*W J H Bellamy	Wilmington	1870
*Walter Brodie	Wilson	1870
J L Knight	Tarboro	1870
*W T Ennett	Burgaw	1870
W I Royster	Raleigh	1871
*Geo Gillett Thomas	Wilmington	1871
John McDonald	Washington	1872
Francis Duffy	Newbern	1872
*A G Carr	Durham	1873
J M Hadley	LaGrange	1873
J W Vick	Selma	1873
P L Murphy	Morganton	1873
Jos Graham	Charlotte	1874
W H Lilly	Concord	1874
*T D Haigh	Fayetteville	1874
*L J Picot	Littleton	1875
D N Sills	Castalia	1875
W J Cooke	Franklinton	1875
*F J Thorpe	Rocky Mount	1875
W H Whitehead	Battleboro	1875
*R H Speight	Tarboro	1875
H G Land	Poplar Branch	1875
W C McDuffie	Fayetteville	1876
Henry Tull	Kinston	1876
A V Budd	Lockville	1876
*J W McNeill	Fayetteville	1876
J D McMillan	Lumberton	1876
W H McKinnon	Fayetteville	1876
J D Roberts	Goldsboro	1877
*Geo W Long	Graham	1877
Geo W Graham	Charlotte	1877
N S Siewers	Salem	1877
W P Mallett	Chapel Hill	1877
*Ric'd H Lewis	Raleigh	1877
F W Potter	Wilmington	1778
J F Harrell	Whiteville	1877
A M Lee	Clinton	1877
J R McClelland	Mooresville	1878
*R J Noble	Selma	1878
*W H H Cobb	Goldsboro	1878
J H Tucker	Henderson	1878
E H Hornaday	Willow Green	1878
*P B Barringer	Davidson Coll	1878
I W Faison	Mt Olive	1878
J A Pollock	Kinston	1878
Hubert Haywood	Raleigh	1879
J M Covington	Rockingham	1879
C E Bradsher	Durham	1879
S W Stevenson	Mooresville	1879
H T Trantham	Salisbury	1879
*W P Beall	Greensboro	1879
A D McDonald	Wilmington	1879
S B Jones	Charlotte	1879
J J Cox	New Garden	1879
D M Prince	Laurinburg	1879
J A Sexton	Raleigh	1879
S B Evans	Statesville	1879
John C Walton	Prosperity Hill	1879
J T Sledge	Greeneville	1879
R A Hargrave	Robersonville	1879
W L Abernathy	Hickory	1879
*Julian M Baker	Tarboro	1879
T E Balsley	Riedsville	1879
*Thos E Anderson	Statesville	1879
J M Stansill	Rockinham	1879
W K Anders	Gravel Hill	1880
Thomas Hill	Goldsboro	1880
Ed de la Rive King	Goldsboro	1880

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Name.	P. O. Address.	Signed Constitution.
J C Shepard	Scotts Hill	1880
*W C. Galloway	Snow Hill	1880
T W Harris	Chapel Hill	1880
*T S Burbank	Wilmington	1880
R W Thomas, Sr	Thomasville	1879
R H Adams	Gastonia	1880
L W Hunter	Charlotte	1880
*C M Poole	Craven	1880
J L Nicholson	Richlands	1880
D B Frontis	Wadesboro	1880
*A W Knox	Raleigh	1880
John Whitehead	Salisbury	1880
S J Montague	Winston	1880
*A B Huntley	Wadesboro	1880
Jno A Collins	Enfield	1880
*W P Mercer	Toisnot	1880
B F Whiteside	Hickory	1881
*W L Crump	South River	1881
S P Waldo	Cary	1881
D J Cain	Asheville	1881
J M Lyle	Franklin	1881
J A Reagan	Weaverville	1881
R S Baynes	Bushy Fork	1881
T B Robertson	Neuse	1881
*H W Lilly	Fayetteville	1881
G W Fietcher	Fletcher P. O	1881
S H Lyle	Franklin	1881
J Anderson	Calahan	1881
E Crowell	Lincolnton	1881
*M H Fletcher	Shufordville	1881
Thos M Jordan	Hookerton	1881
W L Hilliard	Asheville	1881
C Winston	Franklinton	1881
*R L Payne, Jr	Lexington	1881
T F Meisenheimer	Morven	1881
T F Pharr	Concord	1881
W D Hilliard	Asheville	1881
J W Moose	Mt Pleasant	1881
J H Faison	Faison	1881
W L Reagan	Ivy	1881
H. B. Weaver	Weaverville	1881
A J Battle	Earpsboro	1881
J H Williams	Asheville	1881
J R Irwin	Alexandriana	1882
A R Wilson	Peekham	1882
*K P Battle, Jr	Raleigh	1882
H B Furgerson	Halifax	1882
J T Strickland	Thomasville	1882
J B Gunter	Bingham Scho'l	1882
*Geo S Lloyd	Tarboro	1882
*R S Young	Concord	1882
R A Smith	Goldsboro	1882
C A Meisenheimer	Pioneer Mills	1882
W P Whittington	Burnsville	1882
C F Anderson	Mocksville	1882
W W Faison	Goldsboro	1883
W O McDowell	Scotland Neck	1883
N H Street	Pollocksville	1883
J A Stevens	Clinton	1883
T S Royster	Williamsboro	1883
I M Taylor	Morganton	1883
J M Hodges	Mt Olive	1883
S H Rogers	Raleigh	1883
*W L Hudson	Hawley's Store	1883
Oscar Gregory	Oxford	1883
*F R Harris	Henderson	1883
*H H Whitaker	Old Sparta	1883
N P Bodie	Scotland Neck	1883
G C Edwards	Hookerton	1883
E M Summerell	Salisbury	1883
*K M Ferguson	Cameron	1883
D B McNeill	Shallotte	1883
H T Bass	Tarboro	1883
*N M McLean	Gibson Station	1883
J H Anderson	Tarboro	1883
F C James	Bethel	1883
J C Braswell	Whitakers	1883
*G L Wimberley, Jr	Rocky Mount	1883
B L Long	Hamilton	1883
H I Clark	"	1883
W G Freeman	Murfresboro	1884
W C Whitfield	Sladesville	1884
J A Burroughs	Asheville	1884
*F M Brown	Greenville	1884
J W Long	Randleman	1884
M P Perry	Macon	1884
*G J Robinson	Smithfield	1884
M R Adams	Statesville	1884
*G T Sikes	Grissom	1884
W B Pritchard	Faison	1884
*J M Manning	Durham	1884
F T Fuller	Raleigh	1884
*H P Murray	Plymouth	1884
*V A Whitney	Norwood	1884
J B Beckwith	Smithfield	1884
G W Purefoy	Asheville	1884
M H Futrell	Woodland	1884
B F McMillan	Plainview	1884
*J E Grimsley	Snow Hill	1884
R F Gray	Winston	1884
W J Jones, Sr	Goldsboro	1884
J P Smallwood	Lewiston	1885
Thos A Vicker	Durham	1885
W N Hicks	Fish Dam	1885
S B Woods	Bell's Ferry	1885
L P Sorrell	Kelvin Grove	1885
J C Whiteside	Morganton	1885
W H Wilson	Dallas	1885
L M Archey	Concord	1885
C E Adams	Gastonia	1885
J H Baird	Briggsville	1885
A W Fitts	Tyro Shops	1885
*W E Powell	Castoria	1885
Thos J Jones	Lansing	1885
J B Powers	Wake Forest	1885
F W Hughes	Newbern	1885
L. L. Sasser	Smithfield	1885
L W Battle	Durham	1885
E W Pugh	Windsor	1885
*W L Best	Johnson's Mill	1885
S D Booth	Oxford	1885
J H Powell	Goldsboro	1885
*J H Benton	Newton Grove	1885
Henry Sloan	Lisbon	1885
W P Kenedy	Warsaw	1885
Jos Brank	Weaverville	1885
*A P Dixon	Vollers	1885
J S Griffin	Lewiston	1885
Patrick Booth	Knap of Reeds	1885
R J Porter	Youngsville	1885
R T Spencer	Chalk Level	1885
John B Carr	Old Sparta	1885
W T Spruill	Youngsville	1885
J A Hodges	Fayettville	1885
D N Dalton	Winston	1885
Annie L Alexander	Cowan's Ford	1885
John O'Brien	Halifax	1885
*J T Nicholson	Bath	1885
J M Hays	Barnitz	1885
D B Reinhart	Thomasville	1885
A T Cotten	Morrisville	1885
T R Harding	Huntsville	1885

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J M Kirkpatrick	LaGrange	1885
C H Bradsher	Hurdle's Mills	1885
A B Roberson	Chapel Hill	1885
A D York	Morrisville	1885
W P Small	Washington	1885
*J P McKay	Averasboro	1885
J T Shubrick	Winton	1885
S L Montgomery	Monroe	1885
J S Bell	Matthews	1885
K Leggett	Palmyra	1885
W W Pharr	Query's	1885
J C Perry	Newbegun	1885
*J M Faison	Faison	1885
*J W McGee	Raleigh	1885
A W Dorsett	Bethany	1885
D G Caldwell	Tulin	1885
J M Emmett	Oxford	1885
*W B Crisp	Cliffa	1885
R B Ellis	Raleigh	1885
W T Herndon	Morrisville	1885
*Gilbert McLeod	Carthage	1885
J L McMillan	Red Spring	1885
J M O'Kelly	Williams Mills	1885
B G Webb	Asheville	1885
*E P Williams	Cedar Creek	1885
*W T Pate	Laurel Hill	1885
*R A Whitaker	Trenton	1885
*J I Coleman	Hurdle's Mills	1885
J A Wise	Red Mountain	1885
M F Fox	Greensboro	1885
*D T Tayloe	Washington	1885
*Zeno Brown	Greenville	1885
F W Ritter	Shiloh	1885
S R Hardee	Moriah	1885
D Lucas	Enfield	1885
Mayland Bolton	Rich Square	1885
A A Maynard	Clayton	1885
*W E Turlington	Benson	1885
A P Keever	Keeversville	1885
*S T Nicholson	Washington	1885
*Fleet J Cooper	Hives	1886
T C Bullock	Blockers	1886
C J Mattock	Pollocksville	1886
H C Jackson	Pittsboro	1886
*G H Dodd	Clayton	1886
*A W Hamer	Laurinburg	1886
*D B Zollicoffer	Garysburg	1886
E M Littlejohn	Thomasville	1886
E H Bobbitt	Palm Spg's, Va.	1886
U S Hassell	Jamesville	1886
J M BoyEtte	Little Riv. Acad	1886
S P Sparrow	Sladesville	1886
E Rose Dorsett	Salisbury	1886
R W Thomas	Durham	1886
Edward Clark	Middleton	1886
B S Utley	Holly Springs	1886
*R A Whitaker	Trenton	1886
J L Manney	Beaufort	1886
Chas Duffy	Catherine Lake	1886
*M W Harper	Dunn	1886
*H T Chapin	Pittsboro	1886
*H H Harriss	Wake Forest	1886
S C McClure	Statesville	1886
W H Ward	Plymouth	1886
*M E Robinson	Goldsboro	1886
O D King	Wilmington	1887
H L Abernathy	Hickory	1887
W D Pemberton	Big Lick	1887
A J Hoover	Lincolnton	1887
J H McDuffie	Keyser	1887
S S Daniel	Winton	1887
A W Goodwin	Raleigh	1887
W H Bagwell	Pactolus	1887
H W Lewis	Jackson	1887
*Henry H Dodson	Milton	1887
S W Battle, U S N	Asheville	1887
J F Beall	Linwood	1887
W L Crouse	Crouse	1887
Joe Hill	Arcadia	1887
J E Caldwell	Caldwell	1887
*J Howell Way	Waynesville	1887
*R H Stancell	Margarettsville	1887
*R A Patterson	Aurelian Spgs.	1887
J McDeArmon	Mint Hill	1887
J G Christian	Mt Gilead	1887
J H Bingham	Garrison	1887
R J Brevard	Charlotte	1887
W B Henderson	Hopewell	1887
D O'Donoghue	Charlotte	1887
D McBryde	Maxton	1887
E C Register	Enselville	1887
R W Tate	Greensboro	1887
*Jas M Dunlap	Ansonville	1887
*J. D Croom	Maxton	1887
W C Ramsay	Monroe	1887
J A Avery	Pineville	1887
D C Parris	Hillsboro	1887
J M Lawing	Lincolnton	1887
R W Winborne	Barnitz	1887
W P Craven	Martindale	1887
*W S Anderson	Wilson	1888
*G E Ashcraft	Monroe	1888
*J M Belk	Morven	1888
*J G Bradnax	Greensboro	1888
*J E Brothers	Stantonsburg	1888
*L G Broughton	Reidsville	1888
*A Cheatham	Henderson	1888
*B T Cox	Greenville	1888
*D S Ellis	Woodland	1888
*J A Faison	Mt Olive	1888
*T T Ferree	Brown Summit	1888
*E B Goelet	Brevard	1888
*J C Grady	Seven Springs	1888
*J A Griffin	Godwin	1888
*W B Harrell	Dunn	1888
*A S Harrison	Ringwood	1888
*S A Henley	Ashboro	1888
*N B Herring	Wilson	1888
*W Josephus Jones.	Clayton	1888
*C H Lewis	Farmers	1888
*H W Lucas	Black Creek	1888
*W. J Lumsden	Elizabeth City	1888
*Jenness Morrill	Farmville	1888
*H B Marriatt	Battleboro	1888
*F T Meriweather	Asheville	1888
*E H McCullers	Clayton	1888
*A McDougald	Cum'land Mills	1888
*Geo H Moran	Morganton	1888
*Jas W McGee, Jr	Raleigh	1888
*D C Moore	White's Store	1888
*A McKinnon	Lumber Bridge	1888
*W R Monroe	Madison	1888
*J R Pearsall	Manchester	1888
*J C Robertson	Clayton	1888
*C W Sawyer	Elizabeth City	1888
*Duncan Smith	Athens	1888
*Duncan Sinclair	Plain View	1888
*Jas Spicer	Goldsboro	1888
*M M Tatum	Winnie	1888
*C B Woodley	Trenton	1888
*A R Zollicoffer	Weldon	1888
*Thos Stamps	Milton	1888
*Jno H Jenkins	Dallas	1888
*H Stokes Lott	Winston	1888
*T P Wynn	Tarboro	1888

HONORARY MEMBERS.

Dr. J. D. Bellamy, Wilmington, N. C.
" R. Dillard, Edenton, N. C.
" John H. Hill, Goldsboro, N. C.
Dr. W. T. Howard, Baltimore, Md.
" Hunter McGuire, Richmond, Va.
Prof. L. A. Sayre, M. D. New York.

MINUTES

—OF THE—

THIRTY-FIFTH ANNUAL SESSION

——OF THE——

Medical Society of North Carolina.

FAYETTEVILLE, N. C., May 8, 1888.

FIRST DAY—Morning Session.

Local Committee of Arrangements.

Dr. J. A. Hodges, as chairman of the Committee of Arrangements, said: I now call this meeting to order.

Rev. J. H. Wheeler opened the session with prayer.

Dr. J. A. Hodges said: Members of the Medical Society, as the representative on this occasion of our people and their hospitality, I have the pleasure to introduce my distinguished fellow-townsman, the Hon. G. M. Rose.

ADDRESS OF WELCOME.

Mr. President and Gentlemen of the North Carolina State Medical Society:

The members of the medical faculty here have placed on me the pleasing task of welcoming you to the historic city of Fayetteville, and it is a pleasing task. Representing not only them, but all our citizens, in their name and their behalf I extend to you a cordial greeting. Coming from all sections of our grand old State, the representatives of one of the leading, if not the leading, learned profession of our land—coming nearer to our hearts and our hearthstones than any, save the ministers of our Christian religion, we are

glad to have you with us, glad to see your faces, thrice glad to welcome you to our homes.

In these days of utilitarianism—in these days when all the different classes are organizing for earnest effort—when the trend of things is toward progress and advancement, it is the highest duty of your profession, most of all, that these annual meetings should be held, and it is a high privilege for any community, any people, to have your presence and the benefit of your learning, your counsel and your discussions. Need I add that it is a compliment to your skill and ability that your own communities could spare you for even a few days? What people are so missed from a community as the doctor? The nearest and dearest friend of the family is gone when he departs—and I doubt not that now, in many a home in North Carolina, some anxious eye is turned towards Fayetteville and some anxious heart is beating with pulsing throb for your return.

Did I say that yours is a learned profession? It is more than that—it is the loved profession. While learning, skill, experience, nerve, and oftentimes apparent cruelty, ought to be part of your equipment, still there is something gentler, something more soothing, something that comes nearer reaching the tenderer chords of the human soul, and sounding its softer melodies that brings it so close, so near to the human race—something that sweeps that harp upon whose strings the smallest hands can play heaven's sweetest tunes on earth.

When the light first begins to dawn upon a human being you are there to usher in its weak and feeble life. When childhood begins to totter and its innocent tongue to prattle, you are with it to direct its footsteps and guide its pathway. When youth puts forth its strength and grasps for yet more vigor, it is the physician that leads the way and points to strength beyond. When manhood and womanhood has pushed behind the frivolities of youth and stands erect, bearing upon its shoulders the responsibilities, the virtues and the beauty of perfected life, it is he that tells how to protect that life, how to adorn it with all the beauty and all the loveliness that perfect health can bestow and make it still better able to bear her burden and her cares. And when old age, with its withering blight and frosting breath makes feeble our footsteps and makes its furrowed lines upon our wrinkling brow, it is he who with gentle hands smooths the gathering frowns and make easy its declining years.

Yea, in life and in death, in health and in weakness, in joy and in affliction, in trouble and sorrow, your profession comes nearest the human family, so near that the law respects its sanctity and veils forever from the public gaze its closest ties and tender associations, and woe be to him who tears the veil away and invades its sacred precincts.

Representing such a profession, you are here to consult among yourselves of the duties, the cares, the advancement made during the past year, and to make yourselves, by friction of mind with mind, more able to meet those responsibilities that have been cast upon you in your sphere of life. And as such I welcome you once again to the good old town of Fayetteville—old in her memories, old in her traditions, old in her hospitalities, old in all that makes her open-handed and open-hearted, but new in progress, new in advancement, with a new life, new hopes, new aspirations and a new determination to efface from her brow the blighting effects of war and again place her on the high road to prosperity.

Ah ! we have traditions to which we cling—we have memories we would not forget, and to the scenes of those traditions, to the home of those memories we now invite you.

Do you wish to revive the memory of womanly valor and heroic devotion ?—we invite you to the ruins of the home of Flora McDonald, the Scottish heroine who, with a woman's tact and a woman's tenderness, in her own rugged Scotland, saved her " bonny Prince," who was hunted from mountain to dell and from crag to cavern. Would you linger around one of the loveliest spots in all the Cape Fear country ?—go with me to the limpid waters of Cross Creek, and gaze where tradition says two beautiful streams in the years agone were wont to cross each other on their meandering way to the sea. Would you quaff our life-giving waters, more pure and sparkling than those beside which the temples of your heathen god were wont to be erected ?—then taste of those of Cool Spring, of which it is said that when once drank the memory forever lingers, and you ever desire again to taste the cooling draught. Would you view the sterner realities of life, and see the horrid waste of war ?—then go with me up yonder hill and behold its desolation and its blight—see the place that once was life and stir and beauty, now, alas ! but brick and mortar—its beauty gone, its people scattered and but ruin left to mark the track of war. It is the old Fayetteville Arsenal.

Should you tire of seeing these sights, and need something to refresh the inner-man, then find Tokay, the hospitable home of Col. Green, and taste his sparkling wines.

But we have more than traditions, more than memories—we have life, we have energy, we have hopes, we have industries and trade, and we are building more and more for the future. Though left by the exigencies of war in that track of fire which swept like a besom of destruction across this fair land, we have not lain idly down mourning over our losses and thinking only of the past—but look around you while here, see the evidences of thrift, see our stores, our factories. our hotels, our varied industries, and tell your people when you return that Fayetteville is old or dead no longer—tell them that she is no longer the isolated town she was, but that with her railroads, her telegraph and her other varied resources, she is stretching out to greet the world.

See her lovely women and her beautiful girls, always the fairest of the fair, and if you are young yourselves, or on your second pedestals, come again when you have more time to stay.

To these, and all these, I welcome you, but above and beyond all, I welcome you to our hospitality and our homes. If there is one distinguishing trait in our character of which we are more proud and of which we are most jealous, it is of that open-handed, generous-hearted, warm hospitality for which our forefathers were noted—to these and to more—to our homes and our firesides, we welcome you, but owing to our salubrious climate and our pure, life-giving waters, please excuse us from taking your physic while here.

RESPONSE.

Dr. R. H. Lewis, in response, said: Mr. Chairman, ladies and gentlemen, and fellow-members of the Medical Society of North Carolina: When approached, on yesterday afternoon, by one of my medical friends in the city with the request that I would do him a favor, not for a moment suspecting its nature, I was quite overwhelmed when he informed me that it was to reply to the Address of Welcome on behalf of the Medical Society. To my protestations that he should seek a more eloquent tongue, one better filled to represent such a body of men, he turned a deaf ear, and, soothing my agitation with kind words of encouragement, he insisted that I should undertake the duty,

Feeling that it would be ungracious in the recipient of such a cordial welcome as I had met with to refuse to do anything and everything I could to gratify my friends here, I with many misgivings consented. But you must not forget, ladies and gentlemen, that we medical men, owing to the peculiar nature of our calling, are more men of action than of words, and I cannot hope to tickle your ears with the rounded periods of my distinguished friend of the legal profession. I can only, as a plain and simple man who loves his friends, say for myself and my fellow-members of the Medical Society, that we cordially reciprocate the kind sentiments so gracefully expressed. Whenever those of us who have not enjoyed a previous visit have heard the name of this old town there has been suggested to our minds the idea of a quaint old-fashioned and rather slow community, embowered amongst flowers and inhabited by a generous and refined people, and since we have come among you we find that our ideas were not false, but that they were more than true. We find in Fayetteville the beautiful and graceful and cultured women, the warm-hearted and genial men, the generous and delightful hospitality we anticipated, but we find more. As we walk your streets we hear the sound of the hammer, the rasping of the saw, the ring of the trowels, and we see rising before us handsome and substantial buildings designed for business and for the joys of home life. And it is a sincere pleasure to note these things. After such cordial words of welcome, we cannot but feel that you are our friends, and we rejoice in your increasing prosperity. Although we be as a traveller that tarryeth but a day, we shall carry away with us delightful memories of our rest, short though it be, from the heat and dust of our ordinary lives under the grateful shade of your vines and fig trees, and we shall carry with us, also, the wish for the prosperity of your community, of your city, and for the happiness of all the good people in it.

SESSION FORMALLY OPENED.

Dr. Hodges then formally declared the Convention open and ready for business. Dr. T. D. HAIGH, President, in the Chair.

THE ROLL WAS THEN CALLED.

The following committees were appointed:

Committee on Finance—W. H. Lilly, G. W. Long, D. T. Tayloe.

NOTE.—The names of all members present will appear, with special designation, in the list of members at the back of the Transactions.

Committee on Credentials—Foote, Brodie, Thomas.

More Attention to the Credentials of Applicants.

The President said: Last year there was not sufficient attention paid to the credentials of some who were admitted to the Society, and it is desirable that this be guarded against this year.

Proposed Alteration of the Constitution.

Dr. G. W. Long read a report upon resolutions as to the alteration of the Constitution of the Society.

Dr. Thomas F. Wood moved that the report be received and stand for a special order to-morrow morning at 9 o'clock.

Dr. Hodges said: I have an invitation from the young men of the Carolina Club of this city extending an invitation to every member of this Society to go to their Club Rooms at any time convenient.

Dr. G. W. Long: I move that the thanks of this Society be tendered to the members of the Carolina Club for their cordial invitation, and that it be accepted as far as possible.

Communication from Medical Society of Wilson.

The Secretary read a communication from the Medical Society of Wilson to the Medical Society of North Carolina.

To the Medical Society of the State of North Carolina:

Gentlemen:—I have the honor to present the following resolutions adopted by the Medical Society of Wilson county at its last meeting:

Resolved, That the Medical Society of the State of North Carolina be, and it is hereby, invited to hold its next annual meeting in the town of Wilson.

Resolved, That the Secretary be instructed to present this invitation at the Fayetteville meeting.

WALTER BRODIE, President.

C. E. COOK, Secretary.

Dr. Booth moved that the communication be received and its consideration postponed until the regular time.

Resolution as to the Violation of the Law Regulating the Practice of Medicine.

Dr. G. G. Thomas: I would like to say that I am informed by a

member of the Board of Examiners that there are one or more persons in this State who are now in possession of a temporary license, and that so far they have not sought a permanent license, and there is reason to suppose that they do not propose to get one. Of course a temporary license is abrogated after the time has expired for the meeting succeeding the grant of such license. The young men who have sought licenses are suffering a great injustice by these young men being allowed to practice, and it becomes the duty of the State Society to inquire into this thing, and this resolution means that this Society must not only adopt some measure, but must back it up by money. The measures to be adopted can be reported by the Committee hereafter. A lawyer must be employed to overlook the whole matter and to present these persons to the grand jury, and I offer the following resolution:

Resolved, That in view of the fact that there are certain persons in North Carolina who are practising medicine and surgery for fee or reward, without a license, or in possession of only a temporary license, it is deemed necessary to take such steps as may bring these persons before the courts of the State; and as such violation of the law affects very seriously the influence and the well-being of the Society,

Resolved, That a committee of three be appointed by the President at this session of the Society, to report at the session to be held next year such measures as may be deemed necessary to correct this evil.

Dr. Foote: I do not agree with Dr. Thomas, but if you appoint this committee let it be done now; there is no use in postponing it twelve months, but I see no necessity for it. There is not a man who does not know that he cannot practice without a certificate, and the people have found out that if you do not possess a certificate they need not pay you. I could mention men in my State who have never prosecuted a man, but who have easily closed out unqualified practitioners. We have the law to do this. If a young man without a certificate comes into a State to practice he is liable to thirty days for a misdemeanor. Let us use the law or repeal it. It has been suggested that we employ one lawyer in the State, but it would cost $500 to do so, and we cannot afford it. We have the law and let us execute it. Every judge visiting Warren county has made it a charge that no man has a right to practice medicine without a license, and what more do we want? If a man chooses to let a quack come into his neighborhood and not take action in the matter, it is his own fault.

Dr. Booth: I am sure that the adoption of a resolution like this

is of much more importance than it would seem. It is an unfortunate fact that the average citizen lets his sympathies go with the irregular practitioner. If a physician finds a man practising in his neighborhood without a license and should say anything about it, the public say that he is prejudiced and is actuated by jealousy and envy. If the attention of the grand jury is called to the man and they do not act promptly, he will say that he makes no charge for his services and that the people simply make him a present. It unarms the regular practitioner.

Dr. Satchwell: I wish to express my sympathy with the resolution of Dr. Thomas, and I rather think it would be better to have action taken at once. I believe that if we have any statutes in North Carolina protective of the profession and of the community, it is the duty of the judges and ourselves to see that they are executed. The time has been when a doctor who spoke up for the honor of the profession was denounced as interested, but that is all altered. I am for still further laws if they are needed, and I want some action taken by this Society in the matter at once. I wish to ask the Society what our relations are with respect to those medical men in North Carolina with diplomas who have graduated since 1880. I know such men cannot collect their fees by law.

Dr. G. W. Long: I, for one, will support the resolution introduced by Dr. Thomas. I think it will agitate the question and call the attention of the doctors throughout the State to the law on the point. If any respectable physician will go to the solicitor of his county or district and say that A or B is practising medicine without a license and that C and D are witnesses, the solicitor will endorse a bill and send it to the grand jury.

Dr. Foote: I do not want to oppose the spirit of the resolution, but I do not want to be taxed to carry it out, as taxes are pretty heavy now. My objection is that it will cost us $1,000 to carry out what Dr. Thomas suggests, and we have enough laws on the subject already. It does not require a solicitor—the grand jury are aware of the law and make it a charge in my county every time. We have the law and the power, and if we do not exercise it it is our fault.

Dr. R. H. Lewis: It is a trite fact that what is everybody's business is nobody's business, and consequently in most towns the law is not practically enforced. The friends of the man who is

prosecuted attribute to the doctor mean and base motives; they say that he is moved by jealousy and envy, and the result is that each individual physician considers that it is not his business any more than it is the business of any one else, and he will not assume any such invidious burden, for he knows that he will be criticised unfavorably. The Society should do it officially and have no individual adversely criticised. Even if it costs a good deal of money, I shall be glad to bear my share. The present law, while a very good one in many respects, needs straightening up, and this same committee should feel the next Legislature and see whether it is advisable to bring it up or not. I think registration for a nominal fee would be a good idea, and any man practising or offering to practice medicine in North Carolina who was not registered be subject to imprisonment, so that no one could evade the law by saying he was not paid. I think it would be to our pecuniary benefit; it may not be to my individual benefit, but taking the aggregate of the Society I believe the money would be an excellent investment, because it would shut out those underhand competitors who take a good deal of money away from us.

The Secretary read again the resolution at the instance of Dr. Satchwell.

Dr. R. H. Lewis offered the following amendment: That the committee be empowered to employ counsel, and if they deem it safe and advisable, have the existing laws perfected by the next General Assembly.

Resolution was passed as amended.

Obituary—Dr. Otis F. Manson.

Dr. S. S. Satchwell:

WHEREAS, We have learned of the death of Prof. O. F. Manson, and whereas it is no less our duty than our pleasure to give permanent expressions to our deep sorrow on account of his death, and our high appreciation of his eminent merits, both as an active and an honorary member of our Society and of the medical profession at large, and also as an honored citizen of our State; therefore be it

Resolved, That we painfully realize our sad loss in the death of Dr. Manson, our friend and associate, and feel that his absence creates a void that is truly afflictive.

Resolved, That as a member of this Society, as a member of the profession, Dr. Manson was faithful, courteous and eminently learned and skilful—always reflecting honor on the calling he loved so well

by the urbanity of his manners and his high attainments as a physician.

Resolved, That we hereby tender our sympathy and condolence to his honored family, and express our earnest hope that the Great Physician may heal the wounds that His own hands have made, feeling assured that however dark and mysterious this dispensation of his providence may be to them and to us, it has been ordered by a merciful and wise God.

Resolved, That a copy of these resolutions be sent to his family.

GEO. A. FOOTE,
S. S SATCHWELL,
THOS. F. WOOD,
Committee.

Dr. Foote: I knew Dr. Manson from boyhood. He was one of the grandest men I ever knew. He was true to every instinct of his profession. I think it is proper that this Society should appoint a committee of three to prepare resolutions of regret. I wish I had a letter I received from his widow last Saturday, which I intended to have read as a matter of interest, showing how she felt towards this Society.

The Committee appointed to draft resolutions to the memory of Dr. Manson and Dr. Dillard, an honorary member recently deceased, are, Drs. Foote, Thomas F. Wood and S. S. Satchwell.

The Case of Dr. J. M. Gallagher.

The Committee appointed to investigate the case of Dr. J. M. Gallagher, of Washington, who was recommended as a member by Drs. Joseph Graham, G. W. Long and C. J. O'Hagan, and about whose right to practice some irregularity is suspected, are Drs. Barringer, Murray and Long.

Request to Register.

The President remarked that it was most important that every member of the profession who was present should enter his name legibly in the register provided for the purpose.

The following candidates were reported by the Board of Examiners as having passed:

Drs. Robert A. Reynolds (col.), Murfreesborough; Elmira Travers (female), Raleigh; Jas. W. McGee, Jr., Raleigh; Frank T. Merriweather, Asheville; Jos. T. Sherrill, Salisbury; A. E. Ledbetter,

Guilford; Jessie O. Walker, Randolph county. Accepted and adopted.

The Committee on Credentials reported the following applicants for membership of the Society:

Drs. Duncan Sinclair, Plainview; C. W. Sawyer, Elizabeth City; W. J. Lumsden, Elizabeth City; J. A. Faison, Mount Olive; W. B. Harrell, Dunn; J. E. Brothers, Stantonburg; D. S. Ellis, Woodburn, Northampton county; W. S. Anderson, Wilson; Chas. B. Woodley, Trenton; Duncan Smith, St. Pauls, Robeson county; Charles H. Smith, Randolph county; Duncan Smith, Athens, Robeson county; A. McKinnon, Lumber Bridge, Robeson county; James W. McGee, Jr., Raleigh; B. C. Moore, White's Store; George H. Moran, Morganton; N. B. Herring, Wilson; L. G. Broughton, Reidsville; Alexander McDougald, Cumberland Mills; Wm. Josephus Jones, Clayton, Cumberland county; J. B. Robertson, Clayton, Cumberland county; G. H. Dodd, Clayton, Cumberland county; J. A. Griffin, Godwin; J. C. Grady, Seven Springs, Wayne county; J. R. Pearsall, Manchester; W. D. Luca , Wilson county. Accepted and adopted.

Adjourned to 3 o'clock P. M.

First Day—Afternoon Session.

The Society was called to order at 3 o'clock.

Professors Michael and Coskery Invited to Seats.

Dr. Long introduced Drs. Michael and Oscar J. Coskery, of Baltimore, Md., and said it gave him great pleasure to move that they be invited to take a seat among them and participate in the discussions. Carried.

Report of Section on Surgery.

Dr. P. B. Barringer, then read his report of Section on Surgery. (See Appendix.)

Dr. Michael, of Baltimore, Md., being invited to make remarks on the above report said: I am grateful to the gentleman who last spoke for one word which gives me a little handle by which I may take hold, and that word is "Antiseptic" Surgery. That is a

word which has a tendency to inspire any one who has the opportunity to compare the surgery of the past with the surgery of the present, and if it will entertain the Society I think the most practical way in which I can discuss the paper just read would be to give a little of my own recent experience in regard to the use of antiseptic surgery and to the manner in which it has aided me. I have had occasion to perform certain operations since the 1st of January, 1888, which, though not so unusual as those related, illustrate the virtues of antiseptic surgery and teach us to what extent we may depend upon this provision to ward off dangers with which we have been more or less familiar. I have had a series of cases of head wounds which are interesting and in which I think the success which has followed the treatment has been, to a very large extent, due to the kind of surgery referred to.

In the month of January an individual was brought into the hospital who had been working about a manufacturing establishment. He incautiously put his head under a revolving wheel and was struck on the left temple, producing a compound depressed fracture of the skull. There were at the time of his admission no brain symptoms; he simply had a wound which penetrated the soft parts and depressed the bone, breaking it nearly through. Following out the very simple elements of what I think is the present state of the surgical art, and with such precautions as I shall briefly describe, the parts were thoroughly scoured with water and then washed with a solution of sublimate.

All the instruments were prepared by being soaked in a solution of carbolic acid and the hands of all the assistants were thoroughly cleansed. The wound was enlarged, exposing the state of affairs which I have just described. I found it impossible to raise the bone, so I lifted out the part which was depressed and washed out the wound, and followed that by a dressing with antiseptic gauze. The dressing of the wound was followed by no symptom whatever except a swelling of the eye on the affected side, which first made me fear he was getting an inflammation, but this was set aside by the fact that he had no fever. The dressing remained on ten days, and after three dressings and in three weeks he walked out apparently as well as ever. He has since reported all well.

A case came into the hospital about the middle of March. A mechanic was turning at a lathe when the chisel flew up and struck

him on the forehead. He was treated in the way I have just described with regard to the first case. I picked out the bones which showed the front walls of the frontal sinus, and various small pieces, too numerous to mention. The nose was broken across the bridge. The most tantalising element was that, after removing this bone, there was an opening in the dura mater through which the blood spurted, having just a slight pulsation, and it became a question as to how that was to be dealt with. I tried to pick up the point on the tenaculum and eventually succeeded in pulling out the fibres so as to reduce the spurting, and then, filling the wound with iodoform gauze and applying moderate pressure, the wound was dressed. This individual, much to our surprise, developed no symptom of inflammation, and there was no further bleeding. The first dressing remained on about twelve days and the wound continued to heal until at the end of four weeks he walked out of the hospital with only a superficial wound, which would take sometime to disappear.

These and other cases, which I have not now time to describe, have given me very great satisfaction, and I think, according to the experience of surgeons in general, it will be just to say that the constant good result which has followed these operations is due in part, at least, to the use of these antiseptic remedies.

Important questions present themselves in the view of antiseptic possibilities in the treatment of hernia in cases of strangulation or constriction and those upon which it may be necessary to perform the radical operation. I think it is important that we should consider the radical operation as one of extreme importance, and I would like to say to the Society that it has been my habit in doing the operation for strangulated hernia, when it becomes necessary, to do at the same time the operation for the radical cure of hernia, and I have had some cases in which it has been successfully and satisfactorily carried out.

In the operation for the radical cure of hernia so great is my confidence in the results which may be brought about by the use of strict antiseptic precautions, that I am very much in favor of doing the operation in all cases where it is difficult, painful or impossible to wear a truss.

Dr. P. B. Booth : I move that the thanks of the Society be ten-

dered to Dr. Barringer for his paper, and that it be referred to the Committee on Publication. Carried.

Dr. N. B. Herring read a paper on "Some Freaks of Malaria." Referred to Committee on Publication. (See Appendix.)

Address by the President.

(See Appendix.)

It was voted, on motion of Dr. Faote, that a committee of three be appointed to consider the President's Address.

The Chair appointed on this Committee Drs. Poote, Payne and Thomas.

The meeting then adjourned till 8 o'clock.

First Day—Evening Session.

Annual Essay on Dysentery.

Dr. W. C. Galloway, pursuant to the order of business, read the Annual Essay, the subject being "Dysentery."

Dr. Way moved that the thanks of the Society be tendered to Dr. Galloway, and that his essay be referred to the Committee on Publication. Carried.

Dr. J. A. White Invited to a Seat.

Dr. McDuffie moved that Dr. White, of Richmohd, Va., who was present, be asked to participate in the discussion. Carried.

Dietetics in Health.

Dr. W. C. McDuffie read a paper on "Dietetics in Health," which was referred to the Committee on Publication.

The meeting then adjourned till 9 o'clock to-morrow morning.

Second Day—Morning Session.

It was moved by the Secretary that a

Board of Censors

be appointed, which was carried.

The Commitiee was appointed as follows : Drs. Barringer, Payne and Bahnson.

How far the New Antipyretics have Substituted Quinine.

Dr. R. H. Lewis read a paper on "How far the New Antipyretics have Substituted Quinine."

Dr. Patterson moved the reference of the paper to the Committee on Publication. Carried.

Dr. R. L. Payne, Jr., thanked Dr. Lewis for having handled the subject so temperately, and was glad to see he was not affected by the craze which seemed to be prevalent in the profession. He believed there are dangers in the use of both Antipyrin and Antifebrin in conditions of debility associated with high temperature. In prolonged pyrexia the ganglionic nervous system is much im- and we cannot give remedies which add to already existing dangers. These remedies, he said, do paralyse the heart, do produce dangerous cyanosis, cold, prostating sweats and collapse. He reported two cases in which bad symptoms followed the use of Antipyrin through paresis of vaso-motor ganglia. These remedies also lessen the secreting power of kidneys and increase danger of uræmia (see experiment of Jacubo-Witsch). They also cause hæmoglobin to be transformed into meta-hæmoglobin and lessen ability of red corpuscles to absorb oxygen, and so bring on cyanosis and collapse. Let us use less dangerous remedies—depend on the inhibiting control of cold sponging, cold pack and cold douches to nape of neck.

Dr. Thomas F. Wood : I just desire to add my experience with antifebrin. I haxe had almost none with antipyrin. My first introduction to the use of the drug began with a case of double pneumonia. It was in the person of a girl of thirteen years of age. When I saw her she had sores upon her lips and tongue, very deaf and quite bewildered. She was taken sick a week before, and was brought to town to me. She had been given quinine in moderate doses, but it did not account for the deafness. I discontinued it, and, after administering a dose of calomel, began the administration of antifebrin. She was delirious for several days, requiring the closest watching to keep her in bed. I will not trouble you with details of the case. The pneumonia cleared up in twelve days, but the fever ran the usual course of a short case of typhoid fever, which I have represented in the chart I present. I only wish to

observe that antifebrin was entrusted to some member of the family, provided with a Hick's thermometer, with instruction that when it reached 100° that a capsule of 5 grains was to be given ever hour until it again fell to 100°. The drug most always brought quiet and profuse sweating, and it will be noticed that it inverted the usual course of fever from evening to morning exacerbation.

Explanation of Diagram.—I took morning and evening temperature, nurse took intermediate temperature as a guide to administration of antifebrin. The tracings, therefore, from 2d February to end of case, show morning and evening temperature and intermediate temperature, showing how promptly the drug reduced fever.

I have treated a few cases of pneumonia with the drug and have noticed none of the cyanotic appearances which have been recorded by others. I am led to believe that antifebrin in pneumonia is safer than opium, and in the hands of those who have experience in treating pneumonia can be easily managed. The analgesic effects are all that can be desired.

In rheumatic fever it seems to be especially valuable. I saw a patient in consultation with my friend Dr. Bellamy, or rather in his temporary absence, who was suffering with rheumatic arthritis. Antipyrin and morphine had failed to relieve his pain, and, in fact, he was so sickened by the morphine that it was discontinued, and solution of salicylate of sodium was given, with antifebrin in five grain doses at night, repeated at short intervals until sleep was procured. Throughout a long period of oriflam motion, which was concentrated upon the hip-joint, resulting in an enormous abscess, antifebrin was sufficient to subdue pain.

In the cases similar to those for which antipyrin is found useful, I have found antifebrin to answer the purpose, and there is no doubt that its effects are more lasting, the dose is smaller, and it is far cheaper.

Dr. Robinson, continuing the discussion on antipyretics, cited a case where it had been used with very happy effects. The patient was a strong, muscular man, suffering from typho-malarial fever. The doctor attending him had administered a dose of 20 grains of antipyrin, and when he was called in he thought the patient had a congestive chill. His temperature was very high. The next day they gave him 20 grains of antipyrin, and soon after he had a rigor

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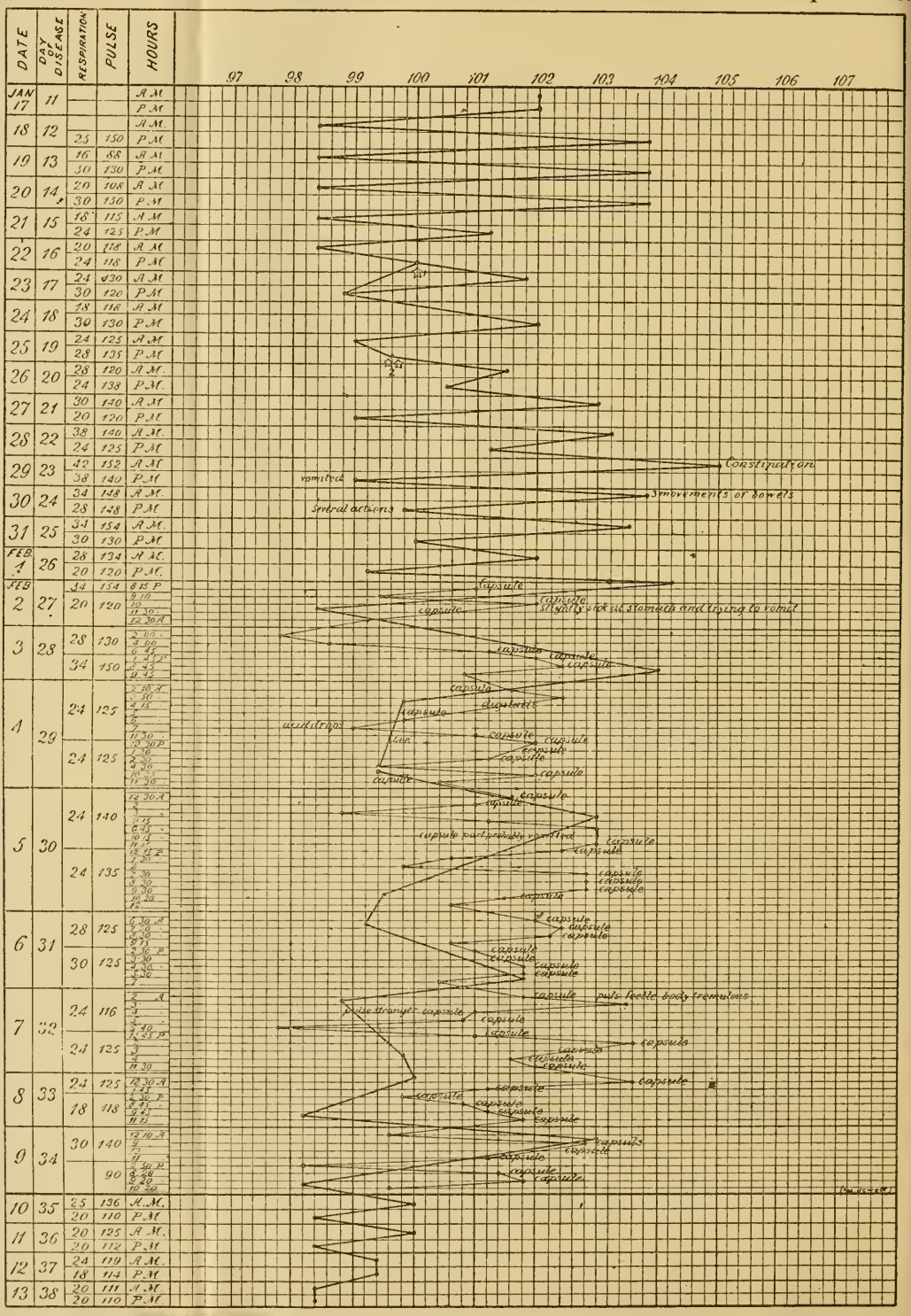
Case of Double Pneumonia and Typhoid Fever Treated with Antifebrin (Acetanylid

Showing Morning and Evening, and Intermediate Fluctuations of Temperature.



so severe that he shook the bed and the mattress was drenched with his perspiration. Dr. Robinson suggested antipyrin in 10 grain doses, and though the doctor in attendance was fearful of the result, the effect was most happy. He thought if the idiosyncrasies of the patient were studied and the dose regulated accordingly, it might be administered with good effect.

Dr. Payne: In that connection I would like to call attention to my own observations. A young lady had taken a dose of 8 grains antipyrin with very happy results, and two days later a like dose produced the most dangerous symptoms. This experience has been confirmed by many other observers, who have noticed that after taking the drug all right at one time, it has produced the most unpleasant symptoms at another time.

Dr. Sykes: I have not experimented with the drug myself, but I would like to mention some facts which I have received from a professional brother who has had considerable experience with antipyrin. He has tried it thoroughly and with admirable results in cases of fever. After using the drug for some time with splendid success, he had a case where he had been using it with the same result, as he thought. He gave his patient a dose of 10 grains antipyrin, and later on followed it with another dose. Soon after leaving the house he was summoned back, and immediately returning, found his patient, a girl of about ten years, in a most dangerous state. In a short time after returning the girl died from the effect of the 20 grains antipyrin.

In a case of typhoid fever, the patient being a girl healthy and strong-looking, the antipyrin was tried in 10 grain doses. After giving a dose or two, at reasonable intervals, he had gone home, when he was again summoned to the bedside to find his patient in a comatose state. He called in a brother to assist him, and it was only after using every means they were able to induce a reaction. His friend had come very near losing two patients within a short distance of each other through the use of this antipyrin. He thinks it would be prudent to use these remedies with care and caution. He had not given it any trial whatever. He was satisfied that with the other remedies we have, we can succeed most admirably in breaking down fevers with cold applications, etc., and he was very much of opinion, from his reading and consultation, that they are

much better, that is, safer, in cases of fever than these strong antipyretics.

Dr. Carr, continuing the discussion, said with regard to antipyretics in hyperperexia that antifebrin and antipyrin are two agents we have long been looking for, and in his hands have never had a bad symptom from their use; collapse has occurred in the practice of others, but not in his. Quinine had produced collapse with him in a dose of 8 grains only, and that in a patient who was accustomed to taking quinine freely. This was proved afterwards, when collapse and diarrhœa followed the use of only 15 drops tr. cinchona comp., and again collapse followed from the patient drinking water from a glass her husband had taken quinine from, no quinine taste being left in the glass. Notwithstanding his favorable experience from antipyrin and antifebrin, on account of theun favorable experience of some others, he always administered them with fear and trembling. For analgesic effect he much preferred antipyrin to antifebrin.

Dr. Bahnson: I have myself dispensed over 19 ounces of antipyrin since last August. I have taken a dose of 40 grains myself, which is the largest dose I have heard of, and beyond a little tingling in the ends of my fingers, a little blurring of vision and a little buzzing in the ears, I felt no inconvenience, and I was relieved of an intense headache without any unpleasant effect whatever. My experience is such, however, that if any more is to be dispensed it will not be by me—10 or 15 grain doses have not given my patients any ease or reduced their temperature. It has aggravated the nervousness which they have felt, and I have not given it in more than half a dozen cases. My experience is that antipyrin has been of use in acute cases—tonsilitis, pains in the head, earache, toothache, lumbago, spasmodic croup, and what might be called spasmodic asthma. I have in my town a family of four children whom I have been in the habit of attending for croup. They do not send for me any more, as they now keep antipyrin powders, whose action is so certain and quick that it is almost fun to have croup. Earache and toothache and almost all pains are relieved by them. A patient with intercostal neuralgia was compelled to call in a physician in my absence. He told the physician that I had been giving him large doses of morphia, which was not true, and the physician gave him a large dose of morphia. He also took on his own account

4 ounces of whiskey and half a teaspoonful of "store" laudanum, all without effect—15 grains of antipyrin relieved the pain immediately. Cases of sciatica and rheumatism are also relieved immediately. Antifebrin is superior to antipyrin, if mixed with brandy, in the relief of sick headache; it will stay upon the stomach and relieve in the course of half an hour, when antipyrin would be rejected. I do not believe in the hypnotic effects of antipyrin and antifebrin. Fashions in medicine change, like every other fashion, and now the fashionable craze is that, if the temperature of a patient gets above 103°, it must be got down or else he will burn up. For a refutation this impression, if any is needed, it is only necessary to turn to the records of the treatment of typhoid fever thirty or forty years ago, when we knew nothing about the thermometer and did not trouble about the temperature of a patient. In those days the physician who did least for typhoid fever generally had the pleasure of seeing his patients recover. I do not regard heat as necessarily an unfavorable complication of typhoid fever.

Dr. Robinson: I would like to ask if Dr. Sykes' friend weighed the doses of antipyrin? It is sometimes inconvenient for country physicians to carry scales, and they are sometimes in the habit of guessing at their doses. After cayrring antipyrin in the medicine-chest awhile it becomes dry, and if not weighed there is danger of giving twice the dose intended.

Dr. Bahnson. I have never given a dose of antipyrin in my life without weighing it, and I think any country physician who cannot afford a pair of scales costing $1.00 ought to be supplied with them. A man who dares to give a patient a dose of any dangerous drug without weighing it, ought to be prosecuted.

Dr. Sykes said he did not know whether his friend weighed the dose or not.

Report of the Committee on Credentials.

Dr. Thomas read the report of the Committee on Credentials, which was accepted.

Dr. Thomas said he wished to bring before them the case of Mrs. Amelia Travers, whose name they had not put with the rest.

Dr. Thomas F. Wood said he was opposed to admitting lady doctors to the Society, and thought that the application of Mrs. Travers should be refused.

Dr. R. H. Lewis said he was acquainted with Mrs. Travers, who was a very bright lady, and he could not see any objection to her or any other female worthy of the license joining the Society. We had already admitted Miss Alexander, who certainly had not given any trouble, and he did not think Mrs. Travers would do so. He thought all scientific men and women, provided they were on a social equality, should be admitted.

Report of Committee on Finance.

The report of the Committee on Finance was read and accepted, as follows :

The Committee on Finance report that, having carefully examined the Treasurer's books, they find—

Balance on hand April 14, 1887	$914.97
Amount collected from members	81.00
Total	$995.97
Bills paid per vouchers	552.55
Balance on hand	$443.42

We recommend the assessment of $2.00 per capita, and the salary of the Secretary and the Treasurer as follows, to wit, to the Treasurer $75; to the Secretary $100.

W. H. Lilly,
Geo. W. Long,
D. T. Tayloe,
Committee.

Codifying Rules of the Society.

Dr. Bahnson : Last year, at the Charlotte meeting, a resolution was passed empowering the Secretary to codify the edicts, changes in By-Laws, etc., and publish them in the Transactions. There appears no such publication, and I am informed by the Secretary and by the members of the Committee on Publication that the report sent in was not satisfactory. I desire, therefore, to ask that a committee be appointed at this meeting to report, if possible, upon such codification. Carried.

The Committee was appointed, as follows : Dr. Bahnson, of Salem; Dr. McBryde, of Maxton; Dr. Manning, of Durham.

Dr. Pierce was appointed in the place of Dr. Foote on the Committee on President's Address.

The Use of the Dilator and Intra-Uterine Stem in Dysmenorrhœa and Sterility.

A. H. Goelett was introduced by Drs. Bahnson and Pierce, and read a paper on "The Use of the Dilator and Intra-Uterine Stem in the Treatment of Dysmenorrhœa and Sterility."

Dr. Ennett said he had expected something great from Dr. Goelet and he had not been disappointed. He wished to call attention to the fact that Dr. Goelet was by birth a North Carolinian—the first water he drank was from the Cape Fear river. He moved that the paper be referted to the Committee on Publication. Carried.

Dr. Kollock Invited to a Seat.

Dr. Huntley moved that Dr. Cornelius Kollock, of South Carolina, be invited to take part in the discussions. Carried.

Report on Reorganization of the Society.

Dr. Barringer moved that the report on the reorganization of the Society be read. Carried.

Dr. Barringer then read the report, as follows:

Mr. President and Gentlemen of the North Carolina State Medical Society:

Your Committee, appointed at the last session, to consider the advisability and practicability of changing the plan of proceedings, etc., at our annual meetings, as proposed in the resolution of Dr. G. W. Long, beg leave to report that we have considered said resolution and recommend their adoption, considering the change contemplated therein both advisable and practicable.

Therefore, in order to perfect the plan therein prepared, we recommend:

I. That the work of the Society be divided into *eleven* Sections, and that the members of the Society be assigned in proper proportion to each Section.

II. That the Sections shall be as follows:

1. Practice of Medicine,	chairman and	4	assistants.
2. Surgery,	"	4	"
3. Obstetrics,	"	1	"
4. Gynecology,	"	3	"
5. Materia Medica,	"	1	"
6. Anatomy and Physiology,	"	1	"
7. Pathology,	"	1	"
8. Therapeutics,	"	2	"
9. Microscopy,	"	1	"
10. State Medicine,	"	1	"
11. Medical Jurisprudence,	"	1	"

III. That the chairman of each Section appointed at the annual meeting shall take charge of all work, papers and communications relating to his department for the ensuing meeting.

He shall select as his assistants for the work of his Section such members of the Society as are deemed most suited for the work in hand.*

To him shall be referred all voluntary papers and communications relating to his department. He shall, at least one month previous to each annual meeting, notify the Secretary of the titles of papers, time required to read, etc., in order that a proper programme shall be prepared.

He shall be the judge of the merit of papers submitted to his Section, and shall exercise due care that only papers of interest and importance be read or submitted to the Committee on Publication.

IV. That it shall be the duty of the chairmen of Sections, when in doubt as to the propriety or merit of any paper falling to his Section, to refer said paper to the Committee of Scientific Inquiry, whose decision shall be final, both as to publication or the reading of such paper before the Society.

V. The chairmen of Sections shall be appointed by the President at each annual meeting, and shall serve until their successors be

*While it is not engrafted in the series of resolutions, it is suggested by the Committee that the chairman of each Section confine his *official reports* entirely to the *advances* made in his department during the years of his service. When there have been no advances in a department worthy of the Society, the chairman of the Section should simply officially so state.—COMMITTEE.

appointed. Each chairman of a Section, when invited by the President to prepare the report of his Section, etc., for the coming session, shall at once inform the President as to whether he will accept or not.

VI. That at each annual meeting of the Society the following time shall be allotted to each Section :

(The Secretary will by the next meeting have prepared a scheme giving each Section its quota, in order of importance, of the allotted time.)

That the discussion of papers, etc., read, be limited to 10 minutes for each speaker without the privilege of extension. The remaining time of each shall be devoted to such other scientific and business matters as are now regularly on the programme of the Society.

VII. That there be appointed a committee of six members, to be called the Committee of Scientific Inquiry. The duties and functions of this Committee shall be to make inquiry, through the medium of many observers, into those mooted questions which are at the time engaging the attention of the medical world. That to this end they shall formulate each year a series of scientific inquiries, which shall be in printed form, mailed to each medical man in the State. That, to insure uniformity and accuracy of report, when necessary, they shall detail the method of observation. That they report to the Society at each annual meeting, in condensed statistical form, the results of such inquiries for the previous year.

VIII. That this Committee of Scientific Inquiry be composed of the six past Presidents of the Society, one retiring each year as his successor in office assumes his duties. That the Secretary of this Society shall be also the Secretary of this Committee and superintend the clerical work of the same.

Respectfully submitted by the Committee,

P. B. Barringer,
G. W. Long.

Dr. Thomas moved that the report be accepted for further action. Carried.

Dr. Jones moved the adoption of the report.

Dr. Thomas said that at present chairmen of Sections had to make a report of the whole progress of medicine in their branch ; he thought

that a deal of unnecessary labor would be avoided and the time of the Society saved by chairmen only reporting on the marked progress which had taken place in their Sections.

Dr. Long suggested that all papers be referred to the Committee on Enquiry for consideration as to whether all or any should be read before the Society.

Dr. Thomas thought it should be made a rule that all chairmen of Sections should transmit their reports and such papers as they think worthy of publication to the Committee on Enquiry thirty days before the annual meeting.

Dr. Carr moved that the Committee of Enquiry be provided with a secretary.

Dr. Pierce thought the question involved a great deal to the Society. It seemed to him that the Society was already encumbered with a great many reports involving an endless variety of duties which the Society had not time to perform, and if there was any way to simplify the proceedings of the Society he was for it. There were already seven Sections, and now it was proposed to make eleven, and he could not see how so much work was to be got through in addition to the ordinary business of the Society in two or three days. He moved the postponement of the consideration of this subject until the next meeting of the Society.

Dr. Long thought the Society was likely to be led into error by requiring chairmen of each Section to make a report of the progress in his Section. He thought power should be given to the chairman and his assistants to select gentlemen to read papers on special subjects, and that only such papers as they thought most profitable and instructive should be presented to the Society, as by attempting to cover the whole field the proceedings would be made dull and monotonous. He thought a change should be made.

Dr. Hodges moved that further discussion be postponed until the 3 o'clock session to-morrow, by which time the members will have had time to inform themselves of the nature of the change.

Dr. Hodges' motion was carried and the discussion made a special order for to-morrow afternoon at 3 o'clock.

The President remarked that there were several gentlemen in the hall from different States and the Society would be glad to listen to any remarks they might have to offer, either now or at any time during the session.

Dr. Hodges conveyed the invitation extended by the Fayetteville Library and the Young Men's Christian Association to the members of the North Carolina Medical Society to make use of their rooms as much as they desired; also the invitations of Col. Green to visit Tokay Vineyard, and of G. W. Lawrence to visit Happy Valley Vineyard, where they would be very welcome.

The Committee on Credentials reported as follows: W. W. Covington, Rockingham; J. G. Brodnax, Greensborough; James Spicer, Goldsborough; Augustus R. Zollicoffer, Weldon. Accepted and adopted.

The Board of Examiners reported the following candidates as having successfully passed: Drs. Isaac M. Lynn, Earpsborough; George R. Hughes, Snow Hill; Preston B. Loftin, Hookerton; Aaron McD. Moore (col.), Rosindale, Columbus county.

Second Day—Afternoon Session.

Conjoint Session with North Carolina Board of Health.

The Medical Society of North Carolina and the State Board of Health went into conjoint session.

Dr. Thomas F. Wood made a motion to call Dr. R. H. Lewis to the Chair in the absence of the President of the Board of Health, Dr. J. W. Jones. Carried.

The report of the Secretary of the Board of Health was presented by Dr. Thomas F. Wood, as follows:

Synopsis of work done for 1887–1888.

Report from Thomas F. Wood, M.D., Secretary of the North Carolina Board of Health.

The work of the Board is still confined to elementary principles. It was recognized at an early day that eventual success must be based upon the spread of the knowledge of hygienic principles, and without this foundation no considerable superstructure could be built.

Mortuary Reports from Towns.—No better instance of the slowness of sanitary teaching need be cited than that of the returns from our towns. Wilmington was for a long time the only one reporting, and

it is interesting to recall how critically the reports from that town were commented upon by newspapers in non-reporting towns. The disadvantage seems to be enough at times to induce the Superintendent of Health to give up the publication of them; but time has shown the wisdom of persistently giving to the public the actual state of mortality, both as regards the actual state of things it portrayed and as an example to the other towns of the State.

In November, 1886, we were enabled to publish in the *Bulletin of the North Carolina Board of Health* the mortality returns of four towns, viz: Wilmington, Charlotte, Asheville and Fayetteville, having begun probably in the order of date as named above. In the December report Raleigh was added to the list, but failing for the next three months to be reported. At the date of this report there are eleven towns reporting, viz: Wilmington, Charlotte, Asheville, Fayetteville, Raleigh, Durham, New Bern, Goldsborough, Henderson, Washington, Tarborough and Salisbury. The basis of these reports is the record of the keepers of cemeteries, received through the keepers themselves, or through the Mayor of the town, or Superintendent of Health, or whoever could be induced to give the statements. It is, then, believed that such reports may be relied upon as approximately correct, making some calculation for the irregular burials resorted to by the colored people and some whites who are driven to seek a spot of ground beyond the control of city authorities, in order to escape the cruel tax which the extravagant fashion of burial now imposes upon white and black, rich and poor. This has been gradually corrected in Wilmington, where a regularly organized burial place under a responsible keeper has been established, so diminishing the error.

Another source of error is also to be considered: In all towns there is a rivalry about the increase of population, and as we get farther away from the last census the temptation to estimate the population has been great in all the towns. Wilmington by the census of 1880 had 17,360, but now a new estimate has been placed upon it. Following a practice in some other States, the population is estimated upon the record of registered voters. Ascertaining the number of voters this is multiplied by 5, which is believed to be approximately correct. The fallacies of this must be evident. For instance, the census preceding an election in which there was great excitement by reason of vital issues and thorough canvasses by good speakers, would be much larger than where there is generally apathy. The

tendency is to overestimate population, and it may be safely considered that the mortality reported is under, rather than over, the mark. The desire of the Board is to agree upon some estimate of population and to impress upon authorities to see that no burials are permitted except upon the certificate of some physician or duly authorized person.

One other source of inaccuracy may be noted in the diagnosis of causes of deaths. All physicians are not equally careful in making diagnoses or even equally competent. Sometimes they state merely the last cause of death. For instance, naming "convulsions" as the cause of death, when the real disease might be "hæmorrhage or "asthma," the "hæmorrhage" signifying really aneurysm of the aorta, the sac bursting into the trachea. The most common cause is probably the post-mortem diagnoses, which are made by Superintendents of Health. In few cases have they the time, or are they encouraged by the prospect of a fee to make a thorough post-mortem dissection, to ascertain the cause, perhaps, in none other cases than such as are ordered by the coroner. The Superintendent, therefore, has to rely many times upon the narration of symptoms gathered from ignorant friends. The rectification of the above errors we must strive for, the ascertainment of truth being the desirable thing, and not the purpose of making one town more healthful than another.

The number of counties reporting has increased from forty-two in our April, 1887, *Bulletin*, to fifty-eight in our January, 1888, *Bulletin*, and the number is slowly increasing. The character of the reports need not be commented on here, but the desire on the part of most Superintendents is to do better, their success depending very largely upon the unanimity and intelligence of physicians in the different counties.

Epidemics.—During the past year no considerable serious epidemics have happened. In Wilmington *scarlet fever*, which had lingered as a sporadic disease for a few years, finally gathered force enough to be considered epidemic; although there were hundreds of cases, there were not to exceed a dozen deaths from this cause.

Measles was unusually widespread in the eastern counties, especially Columbus and New Hanover, but even the remote causes of death made the mortality below the average in this disease.

Cerebro-Spinal Meningitis.—After an exemption of nearly twenty

years quite a sharp outburst of this disease occurred in Buncombe, principally in Asheville, claiming the usual number of victims. It occurred also in scattered cases in other counties of the west, but not in an epidemic form. We are hoping to get a thorough investigation of the causes of the outbreak, as this disease may be fairly considered a preventable one.

Small-Pox.—The whole country was on the lookout for this disease this year, and the Conference of State Boards of Health agreed upon a notification of the occurrence of cases to each board represented in the Conference. The State of California made the first report, then Louisiana, then Kansas, then Tennessee, then Maine, then Pennsylvania, then North Carolina, and so on in pretty quick succession, the port of New York being the source of importation in most of the cases.

In March Dr. James Spicer reported by telegram that a case of small-pox had broken out, asking for vaccine to be sent. This was done immediately. We were then informed that the patient was a foreigner, who had come to work recently in a furniture factory in Goldsborough, and who had come in contact with fellow-workmen and boarders. The case was removed from town, and vaccination resorted to. The promptness of action was rewarded by the restriction of the disease to this one case. April 11th being the 14th day from the outbreak and the possible contact of persons with the sick man, and for the next few days there being no occurrence of another, all anxiety passed away.

Here is a note from Dr. M. E. Robinson giving an account of the case:

"GOLDSBOROUGH, N. C., April 21, 1888.

"THOMAS F. WOOD, M.D.:

"*Dear Doctor:*—One Thomas Read, of Scotch descent, shipped from Glasgow on the 23d February last on steamer Circassia, which he says had a case of small-pox on board which died. They arrived at New York and were quarantined for only nine hours, and were all vaccinated and let loose on the country. I was called to see him on March 26th. On the 27th he broke out with an eruption which looked very suspicious. I called in Dr. Cobb. On the 28th called in Dr. Kirby. At first visit we thought it was measles, that is, on the 27th; on 28th pronounced it small-pox, and at once quarantined

it. He is now about well—able to keep up and about the house. We have been fortunate not to have another case.

"Very respectfully,

M. E. Robinson."

The epidemic fund of the Board, held in reserve for the emergency of an epidemic outbreak has never been drawn upon, but is sufficient for all purposes. It is under the control of the Governor. The State Board, though, does not hesitate to send means of prevention with all dispatch to localities where it is needed. Vaccine we keep constantly within reach in a fresh state, but the Board does not attempt to furnish it gratis, as no provision is made for it. There is a provision for it in the general law making the expense in emergency devolve upon the officials of counties.

Hygienic Instruction.—The Board has secured for distribution copies of the Lomb prize essays on "Healthy Homes and Foods for the Working Classes," "The Sanitary Conditions and Necessities of School Houses and School-Life," "Disinfection and Individual Prophylaxis Against Infectious Diseases," "The Preventable Causes of Disease, Injury and Death in American Manufactories and Workshops, and the best Means and Appliances for Preventing and Avoiding Them," considering these contributions the best upon the subjects attempted. They desire to present copies to the principals of schools and other teachers having charge of the instruction of children. The introduction of books on hygienics, even in our higher grade of schools, has numerous difficulties, and I believe that the most effectual way is to educate teachers thoroughly, so that they may give instruction at opportune times on the various topics considered, according to the circumstances, most needed. It would be highly conducive to this end if the Board be represented at the Teacher's Assemblies by some one of our number competent to bring these objects practically before them.

Penitentiary Convicts.—During the year reports had been made monthly to the President of this Board by Dr. James W. McGee, physician to the Penitentiary, and such suggestions from time to time are made as seem to be indicated. The Board of Health has worked harmoniously with the authorities in this matter, and we trust with advantage to the State.

Insane Asylums.—During the year a committee visited the

Western Insane Asylum, at the request of the Board of Directors af that Institution, and their report is on file. An invitation has been extended the Board to visit the Eastern Asylum for the Insane at Goldsborough. For the first time in the history of the Board the management of all the public institutions have shown their appreciation of the work of the Board of Health, and have asked their inspections and counsel based thereon.

Improvement in County Public Buildings.—Since the beginning of the publication of the *Bulletin* (1886) the most noteworthy fact has been the improvement in the condition of jails and poor-houses. We have endeavored to get such inspections and secure such reports as would give the public proper information about the condition of the prisoners and wards of the counties. This has been the burden of our endeavors from the inauguration of the Board, and, while we do not claim that all of these improvements have been brought about by the efforts of the Board, we are satisfied that what has been done has reached the ear and consciences of the public in a proper way, and that much of this fruitful result is due to our endeavor.

Executive Power Ought to be Bestowed upon the Board in Certain Cases.—The attitude of the State and County Boards of Health is advisory. In all the work done by either, these bodies must wait to be consulted by county or State authorities, or give advice gratuitously. In the latter case the Boards have been obliged to depend upon the force of public opinion to reach the constituted authorities, or if the public feeling were apathetic, see such advice meet the fate of all gratuitous advice—rejected and contemned. Some little executive power can sometimes be exerted when the Superintendent of Health works in concert with municipal authority, in enforcing health ordinances already framed by towns and cities, but this is only secondary, and the judgment of an educated Superintendent of Health can be disregarded or opposed by a municipal officer, and place the Board of Health in the attitude of indifference. There are certain conditions where the Board of Health should be clothed with executive power, and these conditions should be carefully studied and incorporated in a bill to be presented to the Legislature, after having been carefully put in legal shape by a good lawyer. There are times when the authority of the Board of Health of counties should be supreme. There are

times of public danger when none can be found at their posts but the few sentinels, too humble when the security of health reigns to be clothed with authority, but too valuable to be treated with indifference—men who are not afraid "for the pestilence that walketh in darkness, nor for the destruction that wasteth at noonday."—*Psalm xci*, 6.

Dr. Thomas F. Wood then read a paper on the "Preliminary Study of Causes of Death in North Carolina, and some Suggestions as to the Future of Prevention."

Dr. Satchwell said he had listened with great pleasure to the report of the Secretary to the Board of Health. He considered it was of great value and should be spread broadcast over North Carolina, so that all authorities of schools and colleges and municipalities and our coming legislators might read it. He thought no paper of greater importance had been read before the session, and he would like to see it published in such a form that it would be a sort of hand-book. Referred to the Committee on Publication.

Dr. Thomas F. Wood remarked that Dr. Jones, the President of the Board, had been detained by sickness in his family. Dr. Jones had sent his report, but he would not now undertake to read it. He moved that it be referred to the Committee on Publication, which was carried.

Contamination of Foods with Metallic Poison.

Dr. F. P. Venable read a paper on the "Contamination of Foods with Metallic Poison," which was referred to the Committee on Publication.

The next thing, according to the order of business, was a paper by Dr. Bahnson on the "Water Supply to North Carolina Towns." Dr. Bahnson regretted that his paper was not quite ready, but if the Board would allow him he would complete it and send it in to the Secretary of the Board of Health, to be incorporated in the biennial report of the Board of Health.

There being no further business, the conjoint session adjourned at 4 : 30 P. M.

NOTE.—The business details of the Board of Health are conducted at their regular annual sessions.

The Medical Society was then called to order again by the President.

Report of the Section on Gynecology and Obstetrics.

Dr. S. T. Nicholson read the report of the Section on Obstetrics and Gynecology. Referred to the Committee on Publication.

Professors Arnold and Miles Invited to Seats.

Dr. R. H. Lewis moved that Drs. A. B. Arnold and F. T. Miles, of Baltimore, be invited to take part in the discussions.

Early Treatment of Nasal Polypi.

Dr. K. P. Battle read a paper on the "Early Treatment of Nasal Polypi.

Dr. J. A. White's Nasal Speculum.

Dr. White, of Richmond, Va., exhibited and explained a little instrument of his own invention for making interior investigation of the nose; also an instrument, likewise of his own invention, for removing nasal polypi by electricity.

Dr. Carr moved that Dr. K. P. Battle's paper be referred to the Committee on Publication. Carried.

Dr. Thomas made a report of the Committee on Credentials, which was received and adopted.

Mr. J. L. Ludlow, New Member of Board of Health, Invited to a Seat.

Dr. Bahnson moved that Mr. J. L. Ludlow, member of Board of Health, be invited to a seat among the members, and also Dr. Jordan, of South Carolina, who had come up with Dr. Kollock, be asked to sit in the meeting and participate in its discussions, which was carried.

Aneurysm of the Aorta.

Dr. Oscar J. Coskery, of Baltimore, read a paper on "Aneurysm of the Arch of the Aorta," diagnosed through the nervous symptoms, and exhibited a specimen.

On motion of Dr. Carr the paper was referred to the Committee on Publication.

Dr. J. H. Way read a paper on "Laparotomy for Intestinal Obstruction," which, on motion of Dr. Patterson, was referred to the Publication Committee.

A Remarkable Case of Labor.

Dr. Paul B. Barringer: In the fall of 1886 I was hurriedly summoned to meet in consultation Drs. J. R. McClellan and S. W. Stephenson, of Mooresville, N. C., in the case of Mrs. H., aged about 45, then in labor. Upon my arrival I found a woman apparently much older than this, pale, emaciated and almost as bloodless as a marble statue. Upon inquiry, I learned the following history: Mrs. H., the mother of a large family, had been an invalid for several years. For the past year she had scarcely left her bed. She conceived in this precarious condition, and upon an invalid's bed went on to her confinement. At the time of the earthquake, some two months previous, she became insane, and had scarcely recovered her mind when her confinement came on. Dr. Stephenson, the family physician, was summoned, and upon early examination found a placenta-prævia. Appreciating the gravity of such a complication, in such a case, he boldly loosened and brought down laterally one side of the disk of the placenta, when the presenting part pressed it firmly against the ischial plane and all hemorrhage ceased. I was astounded at the extremely small quantity of blood lost. It could hardly have been two ounces, and I feel certain that, had any more been lost, she would not have been alive when I saw her. Her blanched and ghastly appearance was the result of previous illness and suffering. Upon further examination we found a presenting breech, and, as if enough were not present to jeopardize life, a six-inch loop of prolapsed cord. Gentle attempts at replacement were unavailing, but sufficiently disturbed our placental impaction to let us know that we must desist. The knee-chest position being impossible in her condition, we simply brought the cord around to where it would receive only the pressure of the soft placental mass. The pulsations of the cord were extremely feeble, if present at all. In the meantime the uterine contractions, feeble from the first, began to flag, and finally ceased. Ergot, pushed to its full capacity, was of no avail, and the patient, in spite of hypodermic stimulants, looked as if she would die at any moment. It was then determined to try and hook the blades of a pair of long forceps over the iliac

crest on either side of the fœtal pelvis and thus deliver. After much trouble they were placed in position, and, with a tight grip on the handles, traction was made. As feared, the forceps slipped off, but not until the breech had been brought down so that we could engage a finger in each groin of the child. By a strong pull the body was delivered, and we thought that, in spite of all, we would get them through safely. But there was another trouble yet in store. As the head appeared to be grasped by the os, after reasonable traction on the neck I passed my arm up and got my finger in the child's mouth. After a long, strong pull, that I hoped would, as in previous cases, exhaust the constricting os, failed, I called for help. No time was to be lost, as the mother was about to die, and what little chance of life was left was with the child. With my right forefingers in the child's mouth, my left hand astride its neck, and Drs. Stephenson and McClellan each at an arm and leg, we with our united strength failed to budge it. No doubt many of you, calmly hearing this report, can imagine what was the matter, but put yourselves in our place, and think if, after the various complications already seen, you would not have been at a loss to account for this last *contre-temps*. We knew something was the matter, and, but for the size of the child, I would have thought it a case of twins with an impeding arm or leg. But my finger, sweeping around the strait, could feel no impediment, and yet I knew that no uterine fibres, as weakened as in this case, could withstand that strong and steady pull. Withdrawing my finger from the mouth, where the inferior maxilla hung, like a pendant cord, from the stain, I passed my hand with great difficulty up over the child's face, and as far as I could go it was free. I then knew that we had to deal with an immense hydro-cephalæ. Withdrawing my arm, I turned it, palm up, in the pelvis, and catching the base of the skull between my fingers and thumb, I crushed in the temporo-sphenoidal arch with ease. Gliding the back of my hand over the soft, doughy placenta, I crushed the occipital and withdrew my hand. Gentle traction now delivered the child's head—and such a head! The placenta was now delivered instantly and the uterus contracted nicely. There was no "wasting." Renewed attention was now given to the mother. Under increased stimulation she seemed to rally for a time, but ere long her heart began to fail, and in a little over a half hour after the delivery of the child's head she died.

This case, in the variety and severity of its complications, exceeds anything of which I have ever heard or have seen record of. I thought it my duty to report it, which I do with the consent of the physicians in charge. We afterwards examined the head of the child. In its crushed, collapsed condition, ii seemed more like a bag than a head. Its measured parieto-mental circumference was over 27 inches, while its fronto-occipital was 26½. One of the most remarkable features of the case was the small amount of blood lost. I have seen but few cases in which there was less—it could not have been five ounces. There was a remarkably roomy pelvis, and yet it could not be expected to pass such a head as that. Retrospectively I may say that there was no reason, in spite of all complications, for this woman to have died, other than her previous condition of debility. While it sounds long, each step in the management of the case was made with promptitude and energy. She almost lived—and if this report will enable any professional brother to guide such a case, under more favorable circumstances, to a safe termination, it will not have been made in vain.

Delivery by the Rectum.

Dr. W. C. Galloway said: A somewhat similar case to that mentioned by Dr. Barringer has occurred to my mind. I was called to see a case one morning. An old midwife had been there two days. When I went to make an examination my finger ran into the rectum, a thing which had never occurred with me before. I went on with the examination, and in running my finger around I noticed a very hard ring. The head projected about as large as a walnut and could not be propelled any further. The expulsive pains were normal, but the woman was exhausted, and I asked the old midwife how long that hard ring had been round there, and she replied about eight or ten hours. I asked if she thought the child could be delivered in that condition. She did not know. I thought it could not. The woman had been delivered previously. I found a vaginal fistula, and in running my finger in the vagina I found I could slip it right within the anus. I told the midwife I would have to bring the woman to the side of the bed and perform an operation. I slipped in my finger and cut a few of the fibres of that hard ring, as nothing could be done without it, and then waited for the labor pains to do the rest of the work. Presently the head began to come

down and the soft part gave way, but that head was determined to go out of the anus; I could not make it go out by the regular track. The child, which was unfortunately dead, actually did come out through the anus. The woman afterwards got along nicely, and has never had any trouble excepting the fistula, which were there. That was the biggest anus I have ever seen, and I have stretched a good many for piles.

Dr. Hodges mentioned that Dr. Ferguson delivered a similar case last year through the anus.

Report of Committee in the Gallagher Case.

Dr. Long read the report of the special committee appointed to investigate the right of Dr. J. M. Gallagher, of Washington, to practice, recommending that his name be stricken from the rolls of the Society, he having obtained entrance by false pretences. The Committee had received verbal evidence since meeting which satisfied them that J. M. Gallagher was not eligible to membership, but to put the matter beyond question they had telegraphed to the Dean of the Faculty of the University of New York whether such a person had graduated there or not, and had received the reply that no J. M. Gallagher had graduated at that University, but that a J. A. Gallagher had graduated in 1858. The Committee therefore recommended that the name of J. M. Gallagher be struck from the roll.

Dr. Thomas F. Wood moved as an amendment that the words "Provided the said J. M. Gallagher does not come forward and make proper explanations at the next annual meeting" be added.

The motion was carried as amended.

Dr. Thomas read the report of the Committee on Credentials. Carried.

Laparotomy.

Dr. Cornelius Kollock read "Some Particulars of Abdominal Section."

Dr. Michael, on invitation, said he had nothing to add to the remarks of Dr. Kollock, to which he had listened with a great deal of interest. He had treated the condition presented with a great deal of skill, and deserved the success he had met with. He had never seen such a tumor himself.

Dr. Patterson moved that Dr. Kollock's paper be referred to the Committee on Publication. Carried.

Report of Committee on Pittman Prize.

Dr. R. H. Lewis reported that no award had been made, as none of the papers came up to the standard. It was the express injunction of Dr. Pittman that a high standard be maintained, and that no award be made unless such standard be reached.

Dr. Thomas F. Wood expressed his appreciation of the courage of the Committee in their endeavor to maintain a high standard of excellence, which he thought was very desirable in the interest of the Society.

To Form a Microscopical Society.

Dr. Barringer gave notice of a meeting in Parlor 4 of the Hotel to form the nucleus of a Microscopical Society for North Carolina, and hoped all interested in such an object would be present; the meeting would take place immediately after the adjournment.

The Society then adjourned till Thursday morning at 9 o'clock.

THIRD DAY—Morning Session.

The Society was called to order at 9 : 45 by Dr. Ennett, the Vice-President.

The proceedings were opened with a prayer by Rev. A. L. Phillips, of the First Presbyterian church.

Dr. J. A. Reagan presented an invitation from the Buncombe Medical Society to the Medical Society of North Carolina to hold its next annual meeting there.

Dr. Payne read a paper on "Viburnum Prunifolium."

Dr. Thomas F. Wood asked if Dr. Payne thought the sedative properties were due to valerianic acid.

Dr. Payne thought they were not, and that they were due to a principle of which we know nothing. An alkaloid had been separated called "viburnin," to which it was probably due.

Dr. Thomas F. Wood said that Dr. Payne was doing what he (Dr. W.) had been for some time trying, through the JOURNAL, to get the young men to do—to take a remedy whose properties were not well known and make experiments on the lower order of animals, and so arrive at fixed principles about its use, and either strike them entirely from the materia medica or establish them on a firmer basis. Several of these native remedies remained to be examined, and Dr. Payne, he thought, had already undertaken the examination of two or three of them. He was highly gratified at the new departure from the old methods, and sincerely desired the Society to return a vote of thanks to Dr. Payne, and that his paper be referred to the Publication Committee in the usual order, which was agreed to.

Dr. Thomas read a report of the Committee on Credentials, which was accepted.

Necessity for Obituary Records.

Dr. Satchwell said no one knew better than himself that the Society had a bright and prosperous future before it, but he also knew that it had a sacred past to cherish, and, as chairman of the Obituary Committee, he had a report to make with reference to the death of several members. He would not detain the Society now by reading the report—he merely desired that it should be brought before the public through the Society. He desired to ask the members to forward him particulars of the deaths of any members that might happen in order that due record might be made of them.

Resolution of Sympathy for Dr. G. G. Smith.

Dr. Anderson, of Statesville, moved a resolution of condolence with Dr. G. G. Smith, of Concord, in his present sickness.

Dr. R. H. Lewis, in seconding the resolution, said he did not know of any member of the Society who would be so much missed. It was with sincere regret that he heard of Dr. Smith's illness, and he hoped he would soon be restored to health.

Codification of the By-Laws, etc.

Dr. Bahnson said that, with respect to the codification of the By-Laws, etc., it would require so much work to prepare a report for this meeting that the Committee had decided to ask the Society

to empower the Secretary to codify, with such assistance as the Committee is willing to render, the laws, resolutions, etc., for publication, if possible, with this year's "Transactions," and in any event to have struck off an edition of 500 or 1,000 copies for distribution among the members and to applicants who frequently ask for such By-Laws. Accepted and adopted.

Dr. Foote read the report of the Committee on the President's Address, and also moved a resolution in regard to the death of Dr. Manson, of Richmond, which was reeeived and adopted.

Invitation to Attend Memorial Services.

Dr. Hodges presented an invitation from the ladies of Memorial Society to the members of the Medical Society to be present at the memorial services in the hall at 4 : 30. Accepted.

Continued Fevers.

Dr. Carr read a paper on "Continued Fevers and What we should Call Them."

Dr. Pierce asked if Dr. Carr employed quinine in heroic doses at the beginning of the disease.

Dr. Carr replied that he had given 30 grains three times a day.

Dr. Pierce said there was a physician in his town who said he would warrant to bring such a fever to a favorable termination in four or five days by heroic doses of quinine. He gives from 60 to 100 grains a day, and in three days he says he can get it perfectly under his control. He himself had used quinine in moderate doses, and it took him usually two or three weeks to reduce the fever.

Dr. Carr believed, from the cases he had read in the JOURNAL, that this fever was not always recognized. He believed that for the first two or three days it was impossible to tell what the fever was.

Dr. Satchwell said that, from an experience of over thirty years, he could endorse the excellent paper of Dr. Carr, and he thanked him for the independent position he had taken as a young and rising man, and for the way in which he had spoken out that morning. In his experience there was such a mongrel fever. We have typhoid fever and typho-malarial fever.

Dr. Carr's paper was referred to the Committee on Publication.

Dr. Long said he understood that Dr. Arnold, of Baltimore, had

a paper on nervous dyspepsia, and moved that he be invited to read it.

Dr. Arnold, on being invited by the Society, read his paper on "Nervous Dyspepsia."

Dr. Pierce said he was gratified to have heard the symptoms so lucidly explained by Dr. Arnold; he believed that there were many such cases, and had in his mind's eye a brother physician who was suffering in the way described. He moved that the paper be referred to the Committee on Publication. Carried.

Dr. Thomas F. Wood said he understood that Prof. Miles had considerable experience in the treatment of chloroform narcosis, and the Society would be glad to have him give it the benefit of his experience.

Prof. Miles on Sudden Death from Chloroform.

Prof. Miles said: There are few things which can interest us more than the sudden stoppage of the heart. The old stories in novels about a man dying suddenly of apoplexy are founded on a mistake; it is stoppage of the heart which produces death immediately. There has been a growing terror of the stoppage of the heart's action from the administration of chloroform. As I am strongly in favor of the administration of chloroform, I have taken considerable interest in the mode by which resuscitation is brought about. Years ago Nélaton, in France, discovered that in animals which had been brought to a condition of apparent death from chloroform, hanging by the tail was the most efficient means of restoring circulation, respiration, etc., and at the present day I think it is generally conceded that the complete and sudden inversion of the position of a patient is the most effective way in which we can bring about resuscitation. Prof. Chisolm has given some most remarkable examples of operations in which resuscitation had to be performed several times, and never failed to be successful, by the inversion of the patient, and I have seen him hold up a small child by the legs for that purpose, while at the same time he exhibited the results of an operation. Now, that is the practical part, but I do not think that North Carolina physicians will stop at the practical part; they want to know the reason for things. Now, what is the reason of this resuscitation? The first idea, and one which I think is generally expressed by almost everybody, is that you bring the blood back to the brain and stimulate the brain-centres, but that is very unsatisfactory. In the second place, what is the blood which you

would pour back into the brain? It is venous blood. But venous blood is not the sort wanted—it is arterial blood, and the arterial blood which would be poured into the brain would be very small. But it might be said you stimulate the respiratory centre, which is normally stimulated by venous blood. Moreover, what is it that threatens death in the use of anesthetics? I take it to be the stoppage of the heart; that is the thing, and not the respiratory movement, which we wish to establish. When the venous blood pours towards the brain it induces stasis. Now, what in the nervous system teaches us that the most sudden way to stop the activity of any centre is the stoppage of the circulation? This pouring of venous blood into the brain seems to me most unsatisfactory. Besides, we know of no centre in the medulla oblongata for exciting the heart's action. What is the condition of the heart? We do not know. I am trying to think it is the condition which we bring about in inhibition. It is not a passive condition of the centre of circulation, nor is it a condition of paralysis. It has come to a stand-still in a condition of inhibition. How does this inverted condition of the body act? Observe that we have the heart lying as in this diagram (shown on the blackboard), and right below we have the liver. The liver is computed roughly to contain about one-quarter of the blood in a man's body. The channels which lead from the liver to the diaphragm are kept open by an attachment which cannot collapse—they are open, they cannot fall together. Now, when you invert the position of the patient you pour the blood from the liver directly into the right ventricle. Now, what do we know about the heart of an animal outside the body. One of the most certain ways to excite that heart to action is to pour blood into it. Mechanical irritation of the blood in the interior chambers of the heart produces that excitement, I believe, which we establish in the heart by inverting. That is my theory, and I think it might be elaborated much more than I would presume upon your patience to try and do here.

I remember the case of one patient where the heart had stopped. I could not, by putting my ear to the chest, detect any beat whatever, and a deathly pallor had spread over the features. I had no assistant to aid me in reversing the patient, a heavy woman, and I struck with the palm of my hand over the region of the heart with a marked degree of violence, and the heart commenced beating and the patient revived. I cannot but think that the strong concussion

to the chest gave the first impulse, as when a frog's heart stops beating you can stop it again for a short time by a slight knock.

Dr. Barringer said that two years ago he was in South Carolina with another doctor on professional business, and a boy about fourteen years of age was brought to them by his father to ask if anything could be done with him. They found a tumor on the right side of the neck about 1½ inches from the clavicle. A small needle introduced brought out arterial blood. The boy was weak, bloodless and exhausted and almost dead. His respiration was weak and sighing. They knew the boy was going to die, and, although they were not prepared for an operation, they decided to undertake it. About a drachm of chloroform was put on the patient's nose, and he drew one whiff and died. Inversion, artificial respiration and everything else that could be done had no effect, and he is dead yet. The boy's heart stopped first and he breathed for sometime afterwards. About six months after that he began some experiments with dogs, and, after a dozen trials, he could safely say that a dog whose heart has not stopped can be resuscitated by the following procedure, which can be used in any case: I have an ordinary needle, about the size of a knitting-needle, which I isolate to about one-fourth inch from the point with a trocar. The apex of the heart is determined, the trocar is passed to the heart, and the needle, on occasion, is used to stimulate the pulseless organ.*

Dr. Michael mentioned a case in which a patient took two whiffs of chloroform and died before he at all came under its influence. He thought that in this case, as in the one related by Dr. Barringer death resulted from heart paralysis. He believed that the explanation of Prof. Miles as to the manner in which inversion brings about the reëstablishment of the heart's action is the most reasonable and probably the correct one. He had had a case in the hospital where a patient had taken chloroform without any ill effect, and a week later died under its influence. He had never seen or heard of a case in which the heart ceased to beat and the respiration went on afterwards in which there was a restoration to life. There were, however, very few cases in which the heart stopped in this manner, and he believed that it was due to some idiosyncrasy in the patient. So far as he knew, when the heart stopped in the manner

*The above few lines not given by stenographer.

described it never goes again. We may discover some method by which it may be started into action, but he had no confidence in any method at present.

Prof. Miles thought it probable that these sudden deaths were caused by heart disea e, and it was only accidental that they occurred while under the influence of chloroform. He knew a case where a patient was about to be put under chloroform, and it was afterwards decided not to do so, and the patient died just when the knife was about to be used.

Dr. Carr believed that these cases of sudden death were due to fright.

Dr. Cheatham had two cases where restoration was very difficult, which he attributed to fright. He had never seen a child suffer from that sudden stoppage of the heart and in his opinion it was because they took it kindly and were not afraid of it.

Dr. Barringer asked if he had ever had a woman ask for chloroform in cases of child-birth.

Dr. Cheatham said he had frequently, and not one of them had ever suffered any ill effects from it, which he considered a confirmation of his belief that the stoppage was due to fright.

Dr. Michael pointed out that people have taken chloroform with perfect impunity, and yet on taking it another time, having no fear, as they were aware of the sensation, they had died, which he thought disposed of the theory that the cause of death was fright.

The President expressed the thanks of the Society to Prof. Miles for introducing the subject.

Prof. White read a paper on "The Nose."

Dr. Galloway moved a vote of thanks to Dr. White for his very complete paper, and that it be referred to the Committee on Publication. Carried.

Dr. Long moved that the stenographer be paid the sum of $25 for his services. Carried.

Dr. Thomas read the report of the Committee on Credentials, which was accepted.

Cases of Phlegmasia Dolens.

Dr. Foote reported two cases of phlegmasia dolens which appeared in one case after eight weeks had elapsed since child-birth, and in the other case a rather longer period had intervened. The

remarkable feature in the two cases was the interval, after the completion of the puerperium, at which the disease had shown itself. His diagnosis was sustained by Dr. Arnold, of Baltimore.

Report of Board of Examiners.

The Board of Examiners reported the following successful candidates; Drs. B. T. Cox, Greenville; A. Cheatham, Henderson; A. S. Harrison, Ringwood; E. H. McCullen, Johnston county; T. T. Ferree, Brown Summit; H. L. Alexander, Davidson county; L. A. Morris, (?) Smithfield; Jenness Morrill, Farmville; W. C. Martin, East Bend; Giles Lucas, East Bend; J. W. Caveness, Greensborough; E. B. Goelett, Brevard.

The meeting then adjourned till 3 o'clock P. M.

THIRD DAY—Afternoon Session.

Dr. R. H. Lewis said that Dr. Way had been called home, and he moved that his paper, which was his report as Chairman of the Section on Materia Medica, be referred to the Committee on Publication without being read. Carried.

Discussion on Reorganization of the Society.

Dr. Barringer read the report of the Committee on alteration of the organization of the Society. (See report.)

Dr. Lewis said it was a subject of great importance, and it seemed to him that the objection to the change arose from the fact that the Society was one of the most conservative bodies in the world, and he was proud of it. They always looked well to any change for fear it should be for the worse and not for the better. But this change did not seem to be so radical as that proposed last year; it did not seem to interfere with the regular order of business, but to make it more effective. He hoped, however, that it would be thoroughly sifted before any decision was come to.

Dr. Pierce thought it was a matter of very great importance, and should receive serions consideration. There were three important points to be considered: First, would this innovation simplify the business or not? Second, will it diversify the business? Third,

will it prove more efficient? We had already changed from the old track with regard to devoting a part of the time of the Society to written communications apart from discussions, and had already formed seven Sections, and what was the result? We have had upon several occasions the whole time of the Society taken up with long discussions upon the history of the medical literature of the country. If you want to read the medical literature of the country, he referred you to Pepper's "System of Medicine," and to others, and to the journals of the day; but the Society was formed for bringing out the experience of the members, of hearing what they had seen and learned during the time intervening between the meetings, and he asked if the changes proposed would make this more effectual. These were the points he thought should be considered.

Dr. R. H. Lewis, in reply to Dr. Pierce's questions said, in the first place, that he did not think it would simplify the work, as there would be eleven Sections instead of seven. but he certainly thought that the increase of the number of Sections would diversify the proceedings just that much. To the third question, as to whether it would make the work more effective, he thought it would, because there would be more work done, and he believed it would aid in energising the Society. While the system is rather elaborate, he could think of none better, and he was heartily in favor of giving it a trial, and if not satisfactory, it would be easy to return to the old routine.

Dr. Thomas said he had several years experience as a member of the Committee on Publication, and knew whereof he spoke when he said the work of the Sections had been very often poorly done. It had been a rather unpleasant task, sometimes, to turn down papers and the work of many weary hours. The Committee of Enquiry would do away with a deal of work which ought not to come before the Society. He thought one complete answer to Dr. Pierce was that the plan was the most complete organization that had ever been proposed, and though it was rather cumbersome, he was willing to give it his hearty support, and hoped it would receive the support of all the members.

Dr. Eunett said: There is one advantage that has not been mentioned yet, and that is that there were a number of young men in the Society who had never spoken at any of the meetings. They were bashful and young, but if selected by a chairman of one of these committees to prepare a paper, he was sure they would be willing to defend that paper after reading it, and they would thus be brought into the

deliberations of the Society. He thought that on this account alone the change should be made.

Dr. Pierce did not think his questions had been answered. Would members attend to their duties better under the form proposed than under the present form? He thought discussion should be open to everybody and the members should be encouraged to relate anything of interest coming within their experience during the intervals between the annual meetings, so that, instead of having half a dozen or a dozen long, papers, they would have a number of shorter papers of interest to every member.

Dr. Barringer said: The framers of the proposed change, having only human foresight, could not say for certain that it would be better than the present system, but they could undoubtedly say that it would not be worse. Out of the six Sections the papers do not average two a year; we can guarantee that the proposed change will not do worse than that, and we can hope for something better.

The question was then put by the President and carried.

Report of Board of Censors.

Dr. G. W. Long submitted the following report of the Board of Censors:

The following question has been submitted to the Board of Censors, to wit: Has a doctor, a member of the State Medical Society, any right to put the word doctor in any public advertisement calling the attention of the public to his drugs, patent medicines, etc.?

Answer—Inasmuch as the selling or using of patent medicines is condemned and forbidden by the Code of Ethics of this Society, it is therefore in violation of the spirit of this Code for a physician, a member of the North Carolina Medical Society, intending to preserve a good standing in the profession, to prefix his professional title to any advertisement of drugs or medicines, as a dealer in these, which shall include the names of any such known nostrums.

P. B. Barringer, M.D.,
Geo. W. Long, M,D.

On motion, the opinion of the Board of Censors was endorsed.

The meeting adjourned at 4 o'clock, in order that the hall might be prepared for the Memorial services at 4 : 30.

THIRD DAY—Evening Session.

Dr. Picöt moved that the paper of Dr. Booth, who had been suddenly called away by sickness in his family, be referred to the Committee on Publication. Carried.

The Case of Dr. Hyatt.

Dr. Poole called attention to the resolution at the previous meeting that Dr. Hyatt be permitted to reënter the Society, and desired to know if he was to charge him the arrears of $6.00 and the initiation fee.

Dr. Bahnson moved that Dr. Hyatt be readmitted on paying the initiation fee of $5.00. Dr. Hyatt had paid all dues up to the time of his resignation, and consequently could come in as a new member according to the Constitution and By-Laws.

Dr. Poole asked if it was fair to other members who had been dropped for being in arrears to allow Dr. Hyatt to reënter the Society without paying the $6 00, as provided by the By-Laws.

Dr. Bahnson said that Dr. Hyatt's case was different. The By-Law referred to was only intended to apply to those who had not expressly resigned and who had continued to receive the "Trancsactions," etc.

Dr. R. H. Lewis said he understood that Dr. Hyatt had already been reinstated, and it was our mistake, and not Dr. Hyatt's fault, that no dues were exacted. He thought it might be explained to Dr. Hyatt that some of the members were rather sore that such an exception had been made in his case. He, however, was opposed to asking him for any money.

Dr. Jones said: When a man is reinstated he does not pay any initiation fee. If he owed any dues when he resigned he ought to pay them, but he was sure that Dr. Hyatt did not owe anything when he sent in his resignation, and did not see how he could owe anything now.

The Treasurer remarked that Dr. Bahnson had paid the fees due from Dr. Hyatt and that the matter was settled.

Dr. Pierce said that there were several members on the list who had not attended any of the meetings for the past ten or twelve years, and who had not paid their dues, and yet they continued to send them the "Transactions" of the Society. He thought that

when a member was three years in arrears and had not said anything about being reinstated, he should be dropped from the list.

The President explained that there were already By-Laws to that effect, and the Treasurer was empowered to act in the matter.

Dr. Thomas read a report from the Board of Examiners, which was accepted and adopted on motion of Dr. Bahnson.

Time and Place of Next Meeting.

Dr. Picöt moved that the place of meeting for the Society next year be selected, together with the time of meeting.

Dr. Lumsden extended an invitation to the Society to meet in Elizabeth City.

Dr. Anderson invited the Society to meet in Statesville.

Dr. Bahnson said he would second the invitation of his professional brother, Dr. Lumsden, that the Society meet in Elizabeth City. He said that their object was to gather in members and to excite an interest in the Society throughout the State, and the country around Elizabeth City was almost a *terra incognita*, which he thought it would be to their interest to visit.

Dr. Thomas, as one of the representatives of Wilmington, said it had been their pleasure, as well as their profit, to entertain the Society once in ten years. The Society was due in Wilmington in 1890, and he would like to ask if their going to Elizabeth City next year would be likely to interfere with their meeting in Wilmington the year following. If they would promise to go to Wilmington in 1890 he would vote in favor of going to Elizabeth City or any other place they liked next year.

Dr. Barringer said he did not see how they could go to Elizabeth City next year and to Wilmington the following year; that would be too much East. He thought either Statesville or Asheville should be chosen for the next meeting.

Dr. Foote thought the Society ought to meet at Elizabeth City, as it is much more accessible than Asheville.

Dr. Satchwell said he wished the Society could accept all the invitations, but they could only go to one place. For the past thirty-five years the Society had been travelling all over North Carolina, from the seaboard to the mountains, and it has been done principally with the object of getting in new members in the various localities. The Society had now, however, arrived at such a point that they

could get along without such efforts, and he proposed that a middle line be struck, and that the Society should stay nearer home. He thought that the Society should accept the invitation to go to Wilson, which was the first one received.

Dr. McDuffie said he was satisfied to stop itineracy and locate, and he proposed that the Society come to Fayetteville again. (Laughter and cheers.)

Dr. R. H. Lewis said he thought it would be better to meet in April than in May, at Elizabeth City, as the fishers hang up their nets on the 1st May, and the members would not have the pleasure of seeing them in operation after that date. The fisheries were very extensive and he thought the members would be very much interested in the operations.

Dr. Lumsden moved that the next annual meeting be held in Elizabeth City on the third Tuesday in April, 1889. Carried.

The Prize Essays.

Dr. Galloway regretted that no paper of sufficient merit had been presented to the committees on prize essays as to warrant the awarding of the prizes, and hoped that another year would see this blot upon the good name of this venerable and influential Society removed.

Installation of Officers.

Dr. Bahnson moved that the Society now proceed to the installation of officers for the coming year. Carried.

Dr. Bahnson and Dr. Carr were appointed to conduct the new President to the Chair.

The Retiring President's Remarks.

Dr. Haigh said: Gentlemen of the Medical Society of North Carolina: Before turning over the gavel to my successor I desire to thank you heartily for your kindness to me during the past year. It was one of the proudest moments of my life when I accepted the position as your President. During the whole year I have received nothing but kindness at the hands of the members, and if you all feel as I do this evening, you certainly have nothing to regret from the fact that you have met in Fayetteville and that we have had generally such a successful meeting. I now turn over the gavel to

my successor with pleasure, knowing that it will be in good hands and that the interests of the Society will not suffer.

The New President's Reply.

Dr. Ennett said: Gentlemen of the Medical Society: I accept the gavel with great thanks. I cannot expect, nor can you expect me to wield it as my worthy and honorable predecessor has done.

This, gentlemen, is the proudest day of my life. To be elected President of the North Carolina Medical Society at any time is a great honor—how much greater must it be at this time, when conferred by the largest body of medical men that have ever assembled in North Carolina—at the most interesting and profitable meeting ever held in North Carolina, and presided over by one of the best and most impartial Presidents we have ever had.

I had rather be President of the North Carolina Medical Society, to-day, than to hold any office in the gift of the whole people of North Carolina, and if you will aid me I will promise to leave nothing undone that will make the next meeting, if possible, better than the preceding one. Again, gentlemen, I thank you.

The Society will come to order.

Dr. Lloyd read a paper on Laparotomy, which was referred to the Committee on Publication.

Resolution of Thanks to the People of Fayetteville.

Dr. Poole moved the following resolution:

Resolved, That the thanks of this Society are due, and are hereby tendered, to the people of Fayetteville, and especially to the Carolina Club, the Library Committee, the Light Infantry, for the use of their Hall, the local physicians and various other individuals and organizations for the hospitalities shown us while in their midst.

Seconded by Dr. R. H. Lewis.

What the President Said.

The President remarked that the Society had never been treated better than in Fayetteville, and it was a pleasure to him to put that motion to the meeting. Carried.

Response.

Dr. Hodges: I rise in the name of the local faculty of this city to thank you in return for the courtesies you have shown and the

pleasure you have given us by your stay here. This brotherhood of physicians has wooed and won the hearts of the people of Fayetteville, and it has been a real, a genuine, a lasting pleasure to have you here with us. The visit of the Medical Society of North Carolina to Fayetteville will be one of our most cherished memories.

Microscopical Society.

Dr. Barringer said that the Microscopical Society had now about twenty members, which he thought was very satisfactory, but as they had not a full selection of instruments there would not be any exhibit to-night, as had been intended. If any one, however, would like to see what instruments they had, he would be very glad to show them.

Appointment of Essayist for Next Meeting.

The Committee appointed to select the Essayist for the next meeting selected Dr. R. F. Lewis, of Lumberton.

Chairmen of Sections.

The President read out the Chairmen of Sections, as appointed, as follows:

Practice—H. P. Murray, Plymouth.
Surgery—George F. Lucas, Point Caswell, Pender county.
Obstetrics—David Tayloe, Washington.
Gynecology—T. S. Burbank, Wilmington.
Microscopy—J. A. Hodges, Fayetteville.
Pathology—L. W. Battle, Asheville.
State Medicine—Kemp Battle, Jr., Raleigh.
Materia Medica—H. H. Dodson, Milton.
Therapeutics—Robert Young, Concord.
Anatomy and Physiology—P. B. Barringer, Davidson College.
Medical Jurisprudence—J. T. Nicholson, Bath.

The Secretary said he would send a copy of the Rules to each of the Chairmen of Sections so that they could appoint assistants, etc.

Selection of Leader in Debate for Next Meeting.

Dr. Haigh moved that the President appoint a leader in debate for the next annual meeting.

The President appointed Dr. McNeil, of Fayetteville.

Temporary Committee on Credentials.

Dr. R. H. Lewis moved that the President, the Secretary and the Treasurer be appointed as a Temporary Committee on Credentials.

The Secretary moved as an amendment that Drs. Hodges, Haigh and McDuffie be appointed a Temporary Committee on Credentials so long as the Board of Examiners were in session to receive all applicants who had obtained licenses. Carried as amended by the Secretary.

Dr. Henry Q. Alexander Passes the Best Examination.

Dr. W. J. H. Bellamy, Secretary of the Board of Medical Examiners, reports that Dr. H. Q. Alexander passed the best examination, and is entitled to the prize offered by Messrs. D. Appleton of New York.

List of New Members Admitted.

Dr. L. G. Broughton, Reidsville.
" J. A. Griffin, Godwin.
" J. B. Robertson, Clayton.
" J. B. Pearsall, Manchester.
" J. C. Grady, Seven Springs.
" J. A. Faison, Mt. Olive.
" Alexander McDonald, Cumberland Mills.
" C. W. Sawyer, Elizabeth City.
" W. J. James, Clayton.
" W. J. Lumsden, Elizabeth City.
" Thomas S. Burbank, Wilmington.
" George H. Maran, Morganton.
" N. B. Herring, Wilson.
" H. D. Lucas, Black Creek.
" James W. McGee, Jr., Raleigh.
" B. C. Moore, White's Store.
" Archibald McKinnon, Lumber Bridge.
" Duncan Smith, Athens.
" M. McI. Tatom, ————.
" S. A. Henley, Ashborough.
" H. O. Hyatt, Kinston.
" W. R. Monroe, Madison.
" H. B. Marriatt, Battleborough.

Dr. C. B. Woodley, Stanton.
" D. S. Ellis, Woodland.
" W. B. Harrell, Dunn.
" J. E. Brothers, Stantonsburg.
" J. M. Belk, Marven.
" W. S. Anderson, Wilson.
" A. R. Zollicoffer, Weldon.
" J. G. Broadnax, Greensborough.
" Duncan Sinclair, Plainview.
" J. E. Ashcroft, Monroe.
" F. G. Merriweather, Asheville.
" E. H. McCullers, Clayton.
" C. H. Lewis, Farmer's.
" E. B. Goelett, Brevard.
" T. T. Ferree, Brown Summit.
" B. T. Cox, Greenville.
" A. Cheatham, Henderson.
" A. S. Harrison, Ringwood.
" James Morrill, Farmville.
" James Spicer, Goldsborough.
" Thomas Stamps, Milton.
" J. H. Jenkins, Dallas.
" A. S. Lott, Winston.

Adjournment Sine Die.

Dr. Foote moved that the Society do now adjourn, to meet in Elizabeth City the third Tuesday in April, 1889. Carried.

THE MINUTES OF THE NORTH CAROLINA BOARD OF HEALTH AT THE REGULAR ANNUAL SESSION IN FAYETTEVILLE, MAY 8–11, 1888.

FAYETTEVILLE, N. C., May 12, 1888.

Present, Dr. R. H. Lewis, Raleigh;
" H. T. Bahnson, Salem;
" J. H. Tucker, Henderson;
" Thomas F. Wood, Wilmington.

Mr. J. L. Ludlow, C. E., appointed by the Governor to succeed Mr. Arthur Winslow, was present and took his place on the Board.

Dr. J. W. Jones, President, was absent, owing to sickness in his family.

Dr. John McDonald telegraphed that at the last moment he was deterred.

Prof. W. G. Simmons regretted his non-attendance, but by reason of his continued bad health he was obliged to forego the pleasure of attendance on this meeting.

Dr. W. D. Hilliard was also detained at home, and expressed his regrets.

Upon motion of Dr. R. H. Lewis, the Board requested the Secretary to express their sorrow because of the impaired health of Prof. W. G. Simmons, and to assure him of the deep sympathy of each member of the Board, with earnest desires that he would soon be so far restored as to take his place again with us—a place he had filled with so much ability and fidelity.

Dr. Bahnson and Mr. J. L. Ludlow were appointed to audit the accounts of the Treasurer, and finding them correct certified thereto.

The following assignments for the current year were made, but are subject to the wishes of the absent appointees.

Dr. H. T. Bahnson on "The Public Water Supply of the State."

Dr. J. H. Tucker on "The Registration of Births, Deaths and Marriages."

Dr. J. W. Jones on "Legislation Necessary for Obtaining Executive Authority for the County Superintendents of Health."

Dr. R. H. Lewis on "The Well Water Supply of the Eastern Counties."

Mr. J. L. Ludlow on "The Sewerage of Towns."

Dr. Jones and Dr. Lewis to attend the Teacher's Assembly at Morehead City, in June, in the interests of Hygienic Instruction in the Public Schools.

Dr. Bahnson and Dr. Wood to attend the meeting of the American Public Health Association, in Milwaukee, in the interests, specially, of the plans for "Cremation of Garbage in Towns," as well as all other subjects connected with the work of the Board.

Dr. W. D. Hilliard will undertake the "Examination of the

Appearance of the Cerebro-Spinal Meningitis," with a view to determine the causes, if possible.

Dr. J. H. Tucker and Mr. J. L. Ludlow will visit the "Eastern Insane Asylum," sometime in June, to inspect the sanitary needs of that Institution, if any, and report in full to the Superintendent and Board of Directors of that Institution, preserving a duplicate for the Secretary of this Board.

THOMAS F. WOOD, M.D., Secretary.

REPORT OF THE BOARD OF MEDICAL EXAMINERS OF NORTH CAROLINA, WITH APPENDED RULES OF PROCEDURE.

WILMINGTON, N. C., May 22, 1888.

The Board of Medical Examiners of North Carolina met in Fayetteville May 5, 1888. The following members were present: William R. Wood, M.D., President, Examiner on Chemistry and Pharmacy; Francis Duffy, M.D., Examiner on Surgery and Diseases of the Eye and Ear; A. W. Knox, M.D., Examiner on Obstetrics and Diseases of Women and Children; James A. Reagan, M.D., Examiner on Physiology and Hygiene; P. L. Murphy, M.D., Examiner on Anatomy; Willis Alston, M.D., Examiner on Practice of Medicine; W. J. H. Bellamy, M.D., Secretary and Examiner on Materia Medica and Therapeutics.

The minutes of the last meeting in Charlotte, 1887, were read and approved.

It was resolved by the Board that, in the future, examinations of applicants shall be in writing, and the standard shall be 70 per cent. It was also resolved that all temporary licenses issued by the members of the Board shall be called in, and the editors of the NORTH CAROLINA MEDICAL JOURNAL are requested to urge upon parties holding temporary licenses to send them in without delay to the Secretary.

Drs. Murphy, Reagan and Knox were appointed a Committee on Rules to Govern the Method of Conducting Written Examinations.

On motion of Dr. Duffy, all examinations for temporary license

shall be in writing and the examination papers be sent to the Secretary of the Board, who shall submit them to the Board at its next regular meeting. The Board may then, in its discretion, license the candidate permanently with or without reëxamination.

The Board continued in session at the Hotel La Fayette until the morning of the 12th inst., after having passed upon the qualifications of fifty-three applicants, thirty-six of whom were licensed, and the remaining seventeen were either rejected or allowed to withdraw. The following were licensed :

Dr. Elma Travis (female), Raleigh.
" James W. McGee, Jr., "
" E. H. McCullers, Clayton.
" F. T. Merriweather, Asheville.
" J. G. Sherrill, Salisbury.
" A. E. Ledbetter, Jamestown.
" I. M. Lynn, Earpsborough.
" J. O. Walker, Randleman.
" P. B. Loftin, Hookerton.
" George R. Hughes, Snow Hill.
" B. T. Cox, Greenville.
" A. Cheatham, Henderson.
" A. S. Harrison, Ringwood.
" T. T. Ferree, Brown Summit.
" Edward B. Goelet, Brevard.
" L. A. Muns, Smithfield.
" Jenness Morrill, Farmville.
" Henry Q. Alexander, Davidson College.
" W. H. Martin, East Bend.
" Giles Lucas, Rone.
" I. W. Caveness, Greensborough.
" William F. Cherry, Tarborough.
" C. D. Wyche, Dabney.
" R. L. Gattis, Bellevoir.
" C. E. Hilliard, Asheville.
" W. F. Chenault, Catawba.
" H. Brantley, Stanhope.
" E. P. Rose, Wade.
" Lawrence S. Flow, Clear Creek.
" Leinster Duffy, New Bern.

Dr. Thomas Stamps, Milton.
" George B. Farrior, Kenansville.
" Henry S. Lott, Winston.
" John H. Jenkins, Dallas.
" Robert A. Reynolds (col.), Murfreesborough.
" Aaron M. Moore (col.), Rosindale.

W. J. H. Bellamy, M.D., Secretary.

RULES FOR THE GOVERNMENT OF THE BOARD OF MEDICAL EXAMINERS OF NORTH CAROLINA.

1. The Board of Medical Examiners shall meet on the day preceding every meeting of the State Medical Society.

2. A quorum being present, an official meeting of the Board shall be held before commencing examination of candidates, and also after all examinations have been finished. At these meetings all questions or subjects for the consideration of the Board, except the qualifications of candidates for license, shall be discussed or determined.

3. The Board shall be prepared to examine applicants from 8 A. M. to 2 P. M., and from 4 to 7 P. M.

At 2 and at 7 P. M. the whole Board shall assemble to pass upon qualifications of candidates. No other business shall be transacted at these meetings except by unanimous consent of the Board.

4. The Secretary only shall announce the results of examinations to candidates as soon as it is practicable; and licenses shall not be issued before the close of the afternoon session of the Board.

5. A candidate who has signally failed upon one fair examination, shall not be reëxamined during that session of the Board; doubtful cases may be reëxamined and reconsidered, but only after an examination has been made of every other candidate who may present himself, except by the unanimous consent of the Board.

6. Reëxaminations shall be conducted only on the branch or branches of Medicine upon which the candidate is considered to have failed. He shall be examined in the presence of the whole Board by the Examiner or Examiners in whose branch or branches he has failed, but the questions propounded shall have been previously submitted to the whole Board and approved.

7. In estimating the qualifications of a candidate a preliminary canvass of the merit of the candidate shall be taken, in which each Examiner shall rate him according to merit in his (the Examiner's) own branch. A vote based upon the reports of all the Examiners shall then be taken, which vote shall decide the election or rejection of the candidate.

8. In deciding the results of reëxaminations the Examiner who has (according to rule) conducted the examination shall cast the first vote.

9. The Secretary shall require a written certificate of the moral character of each candidate and that he is twenty-one years of age.

10. The Secretary shall number candidates in the order of their presentation and payment of fees, and the Examiners shall examine them in the order of their number.

11. The Secretary shall furnish each member of the Board, after the adjournment of the same, a printed list of all licentiates of the Board, also a written list of all rejected candidates.

[APPENDIX.]

SECTION OF SURGERY.

By P. B. Barringer, M.D., Chairman.

(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

Mr. President and Gentlemen of the Medical Society of the State of North Carolina:

It is no longer possible within the limits of an annual address to summarize, however briefly, the work of a year in a department that is now advancing with such rapid strides as in the surgical branch of medicine. The Index Medicus, a few hundred journals and some of the later text-books of surgery would no doubt give us a moderate conception of what has been done in this line during the year, but for an occasion of this kind it would no doubt prove heavy reading. Moreover, I am mindful of the caution against long reports given at our last meeting. I will therefore confine my report to that small part of my department, which may at least present something not stale to all of you. The subject of my report is, then, gentlemen,

THE LATE INVASIONS OF SURGERY.

In the line of new operative procedure the past year has been exceedingly prolific. It has witnessed the successful invasion of three regions hitherto considered inviolable. I allude particularly to the opening and digital exploration of the *pericardial cavity* by Stezner, the removal of the left lobe of the *liver* by Langenbeck, and the no less bold and successful removal of a tumor from the *spinal canal* by Victor Horsley. Other invasions there have been, but none so novel as these, although one or two others of special interest will be mentioned. Stezner, in the *Centralblatt für Chirurgie*, reports the following: A student, after a spree, sought to commit suicide by driving a sewing-needle into the heart. Twelve hours after the introduction of the needle the first serious symptom began. He then had pain in the cardiac region, difficulty in breathing and a loud pericardial murmur at the apex. After thirty-

six hours the symptoms became so very serious that an operation for the removal of the foreign body was decided upon. No trace of the needle being found, either under the skin or in the intercostal space, a piece of the fifth rib was resected, thus opening up the left pleural cavity. Then the pericardium was opened up and about a teaspoonful of cloudy pericardial fluid ran out, and now the needle could be felt lying diagonally in the right ventricle. They then succeeded in driving its head out through the anterior wall of the heart, and then fixing it in this position with the finger-nail. The irregular and violent beating of the heart made it very difficult to catch the foreign body with the forceps, and in the attempt it again slipped within the ventricle, but this time assuming a vertical instead of a horizontal position, rendered it impossible to make any further attempt at its removal. Besides this, an iodoform tampon, used to plug up the hole in the pleural cavity, was drawn into the cavity by a deep respiratory effort. The tampon was not found. The wound was thoroughly tamponed and the patient was well in four weeks, meantime suffering from a severe pneumothorax, with copious exudation. At the present time the patient enjoys good health and feels no effects from his escapade. There is neither heart murmur nor abnormal pulse, nor any trace whatever of the pleural exudation. Where the needle now is, is of course a mere matter of speculation. It may be in the heart or it may have gone on into the mediastinum. No case similar to the present, in which the heart has been laid bare by splitting the pericardium, is mentioned in medical literature.

Such a report, gentlemen, sounds almost beyond belief, and were it not supported by the good name of so eminent a surgeon would be subject to doubt. That a patient should survive the dangers of inhibition, mechanical valve entanglements, pneumothorax, and finally fatal empyema and pericarditis, is almost miraculous. While the technique of the operation was not given in the report that was read, the presence of the iodoform tampons and the result show strict antiseptic precautions. But of this again.

Langenbeck reports in the *Berliner Klinische Wochenschrift* the successful removal of a portion of the liver weighing one pound. Owing to congestive hyperplasia, due to impeded circulation, it was both heavy and movable, causing intolerable distress, especially in the dorsal decubitus. The diagnosis was made by exploratory incision. The hinge-like attachment to the body of the liver was

ligated in sections and the constricted portion removed. Symptoms of internal hemorrhage occurred the same evening, the abdominal cavity was reopened and the bleeding checked, the blood removed by sponging and the wound closed. Healing was prompt, but ascites developed shortly, accompanied by general œdema. The abdomen was twice tapped and the patient went on to a good recovery without further mishap. Langenbeck holds this to be the first case in which a large portion of the human liver has been removed by excision. Such an operation is beyond comment, unless it be said that it was a very hazardous operation to be undertaken as a mere matter of complaisance, as it seems to have been. (In the *Lancet* of February 4–8 will be found a detailed account of this case, and the same is to be seen in the April number of the *Therapeutic Gazette*, page 264.)

The last, and perhaps the most successful, of the new procedures of the year was the removal of a tumor from the spinal canal by Victor Horsley in January last (*Therapeutic Gazette*, March, 1888, p. 198). The patient, a private patient of Dr. Gowen, had spent three years in severe pain, which was most intense and severe just below and inside the angle of the scapula, and was accompanied by absolute loss of motion and sensation in the body below that level. The upper border of the anæsthesia was distinctly in the region of the fifth intercostal nerve on the left side, on the right it was less accurately defined, but did not extend higher. All the symptoms agreed with those of tumor of the spinal cord, and the intense pain afforded ample justification for making an attempt to excise the tumor. Mr. Victor Horsley accordingly removed the spine and parts of the laminæ of the fifth and fourth dorsal vertebræ, but not until the third vertebra had been similarly treated did the tumor come into sight. It was a small oval myxoma, compressing and making a deep impression on the left side of the spinal cord below the third vertebra. It was easily shelled out, and, under careful antiseptic treatment, the temperature did not rise more than 1° F. The wound healed rapidly, except at the uppermost point, where a drain had been left in, by which a little cerebro-spinal fluid flowed away very slowly. For three or four weeks the former acute pain did not lessen, and even at times seemed greater; but after that it gradually and intermittently decreased, and now, after seven months, is entirely gone. The sensation and motion of the body and legs

are almost completely natural. This is, we believe, the first time that such an operation has been attempted, and we must most heartily congratulate both the patient and his adviser on the triumphant character of its success. However far and however quickly surgery may advance, it will long be a memorable day when it gained its first victory on so new a field and over so formidable an enemy.

From the foregoing it indeed seems as if surgery will ultimately tolerate no limit to its domain, and that ere long all of the so-called "vital centres" will belong as properly to the domain of operative surgery as the extremities have in the past.

A propos of the "vital centres," while the subject of brain invasion is not new, and therefore does not properly belong to this paper, it has within the last year assumed so aggressive a character as to justify its insertion. I will therefore insert here the history of a case reported by Dr. William Macewen of Glasgow: The patient was a boy aged 9, was taken ill with pain in ear, drowsiness and vomiting, followed in a few days by chills, which continued until his admission into the hospital. Upon admission was pale and emaciated, with livid lips and herpes; short catching cough; temperature 100.8°; pulse 108; drowsy; pain right ear, from which came offensive discharge. On the third day in the hospital pain became very severe and chill followed. No evidence of retained pus in the ear. An opening was then made into the mastoid cells with a chisel, a stream of antiseptic solution passed through the wound and out by the external meatus, and a drainage-tube left in. No change for the better followed, and the lad continued with rigors and to decline until the 30th day, when Dr. Macewen was called into consultation. Fetid discharge was then coming from the ear and the patient was in a stupor. Abscess of the temporo-sphenoidal lobe was diagnosed and an operation at once proceeded with. The middle ear was disinfected and the scalp cleansed. A one-half inch disc of bone was removed from the squamous portion of the temporal bone at a point one inch above and one-half inch behind the centre of the meatus auditorium externus. The membranes were incised, whereupon the brain tissues greatly bulged out. A hollow needle was then carried in the direction towards the eminence of the petrous portion of the temporal bone. Gas and pus of a most fetid nature flowed freely when the needle had gone to the depth of three-fourths of an inch,

The needle aperture was enlarged with forceps and necrosed brain tissue removed. After all pus and necrotic tissue had been removed the abscess cavity was washed out with boracic acid solution. A counter opening was then drilled through the base of the skull just above the osseous boundary of the external meatus, involving the squamo-petrosal suture, the membranes pierced and the lowest portion of the abscess cavity reached by needle and again washed out through this new channel. Chromicized chicken bones were introduced into both openings, boracic acid was thickly dusted on and a dressing of paper pulp pack super-imposed. Patient soon rallied, and he steadily improved from the time of operation on. All cerbral symptoms vanished. The wound was dressed once weekly and the tubes as often shortened as forced out by granulations. A lapse of six weeks saw the child plump and perfectly well.

You will observe here that the temporal bone was *riddled*, its mastoidal portion was opened into the cells, the upper part of the squamous portion was perforated and a one-half inch disc removed by the trephine, while its lower portion or the upper part of the petrous portion was obliquely drilled for better drainage. And yet the patient recovered.

In the language of the apostle we may well ask: "What do these things mean?" Has the past year been so replete with anatomical discoveries as to warrant the surgical invasion of all these new regions with such energy? It is not that. The surgeons of the past generation were about as well equipped in the way of anatomical knowledge as those of the present. Working without anæsthesia, simple operative skill was cultivated to an extent that we now little appreciate. Boldness was an essential and was cultivated almost to the point of bravado. But bold as they were, they had their Rubicon, which they dare not cross, and they knew it. What is it, then, that has, as it were, swept away almost the limits of surgical invasion? The secret is to be found in one word, and that word is *Antisepsis*. If you are a stickler for names, as some are, call it *cleanliness*. But antisepsis or cleanliness, as you will, this is the secret of the rapid strides of surgical science in the last few years. No method of treating wounds in any part of the human body will give such uniform results as this method, and no method will be tolerated in certain regions of the body unless based upon these same principles of surgical cleanliness. Surgical interference with certain regions of the body, without antisepsis of some kind, can now come only from the bravado of ignorance, and such ignorance is a crime.

PRESIDENT'S ADDRESS.

Fellow-Members of the Medical Society of the State of North Carolina:

It is at all times pleasant to meet our friends—but never so pleasant as when in the place of our nativity we welcome them to our homes.

This pleasure, in its fulness, is mine to-day, as I add to the greeting already so gracefully tendered you, my own warm welcome to the place dearer to me than any spot on earth—the old historic town of Cross Creek—the stirring, progressive city of Fayetteville of to-day.

Since the last meeting of our Society, held in Charlotte, we have all been pursuing, under changing circumstances and with varying success, the duties of our profession, and we come now to lay our offerings of the fruit that has been garnered on the altar of scientific progress. Bringing here this yearly offering, we can boast, at least, that we have no selfish ends in view, but that, like all the work that is done at these, our annual meetings, it is freely given for the benefit of our fellow-men. The advancement of knowledge, the rooting out of old, effete and useless dogmas, and the laying of a foundation on which shall be erected a monument that shall mark the progress of our profession in this age—these be our aims.

To any one who has observed the advance in our profession in the forty years just passed, it would seem wonderful that anything remained to be done, but yet the fact is before us that never before did the soil seem so fertile for the bringing forth of new and better fruit, and the veins seem only just discovered that lead to the richest deposits of golden ore. In order to cultivate these fields and wring from the unwilling ore the bright gold which is coveted, the future men of the profession must take a step higher in the pursuit of excellence and know that there is no short or "royal road to learning," but that upwards they must climb the stony mountain-path—"now hiding in the shadow of the deep ravine, and now coming out on the projecting crag," till at length they stand safe on the mountain-tops "which drink in the waters of the rain of heaven."

Surely the times past of our ignorance should suffice us to have

walked in the way of our fathers. Only men of cultivated minds can grasp the questions which the advanced thinkers are continually bringing before them. No longer can the boy be taken from the plow, with only a smattering of English and arithmetic, and, after a term of two years, go forth to the work that is required of the physician of the present day. Rapid transit over the preliminary course of education, placing in the ranks of the profession men with minds simply crammed with theories will no longer ensure success. In every profession in this practical age men rise to the highest positions, not by theoretical education alone, but by practical experience in all those minor points which are so essential to the perfect man. The Military Academy at West Point is conducted on this principle: Every cadet is a private soldier, taught thoroughly obedience to authority, drilled in the use of arms, compelled to stand guard through storm and sunshine, to endure hardness and submit to all the drudgery of the soldiers life—step by step he advances—mind and body equally educated for the life of the warrior which is before him. No quick advance, but by constant discipline, close study, rigorously practiced through four long, weary years, he at last arrives at the point where, having learned to obey, and being thoroughly versed in the duties of the soldier, he can take the lowest rank as an officer, and still find before him higher objects of ambition and need for continued study and self-discipline. In all departments of life there is more and more required in the way of preliminary education, and when this has been received they advance from one position to another, step by step, becoming perfect in every subordinate position, until at length, being well versed in all the details of the work, they enter into the discharge of the highest duties thoroughly equipped for the work which is before them. So in our profession the world is demanding a complete classical course, collegiate or its equivalent, before one shall enter on that which we term a strictly medical course. In order to meet this public demand some of our medical colleges are making this preliminary study a prerequisite to attendance on lectures. In addition to this, however, there is needed the drudgery, so to speak, of practical work in the hospital and clinics only to be found in large cities. No one, but one who has passed through the terrible ordeal of entering upon active life from the lecture-room, crammed with theories, well posted in all the text-books, but utterly devoid of

practical experience, can appreciate what a year or two in the wards of a hospital is worth. In other words, a thorough and complete education, theoretical and practical, is essential and demanded. Taking this view, our Society has been untiring in its efforts to advance the standard of medical attainment, and, after long and persistent efforts, succeeded in establishing the Board of Examiners, calling public attention to the law requiring the endorsement by this Board of those who desired to practice in the State. Educating the people first to the good results that would come to them individually, public opinion soon caused many to come forward and conform to the law. The result has been, what?—benefit!—untold benefit to the profession and the State!

While the standard has certainly been raised, it has never been quite as far advanced as we hope yet to see it. We desired to advance slowly but surely. The duties of the Board are very responsible duties, and the Society has always sustained them in fulfilling them. The honor of being a member of this Board is the highest in your gift. The beneficial results of the fearless discharge of duties devolving on them has reached far beyond the State, and has caused more rigorous examinations in colleges in order to maintain their own *ad eundem* caste. And, too, it has stimulated our young men to greater zeal in preparation for their life-work. Still, then, let us give them our full, free, cordial support, and hold up their hands in their almost thankless task.

The young men of the Society, appreciating the benefits derived from her hands, are lifting the burden from our shoulders, and are showing themselves worthy of the highest esteem. Stimulated by the grand possibilities of the age in which it has been their good fortune to live, they are adding dignity to their youth and receiving praise from their elder brethren because of their determination to reach the highest point of excellence and to reflect credit upon our Society. Year after year the papers which have been placed before us by our young friends have displayed no ordinary degree of cultivation and evinced a true conception of the dignity of their calling, as well as a clear view of the great field in which their labor will be repaid by honors enduring and precious beyond price. Without in the slightest degree detracting from the power, learning, wisdom and dignity of the elder men of the Society, I can say that within the last twelve years the Society has improved wonderfully in its

intellectual force, more than keeping pace with its vastly increasing numbers. In this none more heartily rejoice than those of us who are now the elderly members of the Society.

This much, then, our Society has accomplished for the good of the profession, and in so doing has benefitted the people to the remotest corners of the State. She has placed in every hamlet and village men who are able to give in any emergency skilful advice and assistance. Then, too, we are elevating our profession and at the same time doing better service to the country by establishing Boards of Health, both State and county. How much good sanitary work they are doing very few of the people, and perhaps very few of our own profession, appreciate. How much more could be done, with the full, hearty coöperation of the communities in which these Boards have been established, is simply incalculable. The question may very properly be asked: Are we enlisting the people in this sanitary work as fully as we could? Are we not rather doing ourselves a wrong, in that we "hide our light under a bushel?" The members of our State Board do a vast amount of good work in the way of experimenting and writing, but very nearly all has been done through professional channels, and very few of the laity have access to these papers, and consequently know very little of the objects and aims of the Board.

The suggestion comes frequently: Would it not be well to select one or more secular papers in the State through which these plans could be presented, and so obtain the sympathy and coöperation we need for full success.

You will remember the able report of the chemist of the State Board at our last meeting and the subjects then discussed. All the work therein proposed can hardly be carried to completion without our aid. We can do much through the members of the Legislature of our respective counties by showing them the importance of such legislation as is needed in all these matters pertaining to public hygiene, and by calling the attention of editors to the necessity of keeping these matters before the public eye. The failure to do this will certainly result in the loss of much that we have already accomplished. This was exemplified in the last session of the Legislature. Unwise legislation crippled in important points the power of the Boards of Health in some of our counties, and unless we can act in the profession in more perfect unison there will be more of just such suicidal action in other counties of the State.

There is an unaccountable jealousy aroused in county officers at the thought of losing any power which has formerly been entrusted to them. We must bring the people to a knowledge of the fact that in these matters we have no selfish ends in view, and *we must have no self in it.* We must have magistrates, county commissioners and the people in perfect sympathy with us, and this can be done if aided by that high-tone loyalty to our profession which will not allow any member, for the sake of a few paltry dollars to bid for any office in their gift. The commissioners under this law have the power to fix the salary of the health officer of the county, and in a few cases to select this officer from the medical men of the county. Let them be compelled *to select in reality from the profession*, and not from applicants and bidders for the position. We must respect ourselves if we desire to be respected.

That wonderful guide, the "Code of Ethics," is ever before us to direct us in all things professional, whether in our duty to each other, to our patients, or to the State. If we would only be guided by it, if we would turn to it for instruction whenever assailed by temptation to do a professional wrong we certainly could not err.

It is wonderful how the framers of these rules of conduct foresaw the needs which were likely to arise. What a clear sense of right, what a high sense of honor, what an exalted view of the dignity of the profession they must have possessed; how thoroughly imbued they must have been with the desire to have the profession attain a position second to none save the ministers of the holy Church. If I were asked by a young man entering the profession what mere human guide he should take to aid and direct him, by the purest, the cheeriest and happiest path to distinction, would give him honor from men and praise from the unseen world, I would say lay well to your heart the maxims and principles of the "Code of Ethics" of the American Medical Association.

It has been always the custom for your presiding officer, after thorough study of the wants of the Society, to recommend in his Annual Message such changes as may appear needful. You will notice that I have refrained from making any such suggestions. It has seemed to me that, after years of labor, we have arrived at a point (while it may not be that of perfection) where it would be well to call a halt and a rest awhile.

Certainly we should feel pride in the fact that we have accom-

plished so much, and that our Society is honored at home and in our sister States. Much can be gained by perfecting that which we have already in hand, and by energizing the different Sections. To this end you will be called upon to decide at our present session what shall be done in order that the work of the Sections shall be more thorough than in times past. The fact that the appointments are made hurriedly, and without consultation with those best qualified to judge who are best suited for the work, and very often without knowing whether the person appointed will accept the position and *do the work thoroughly*, has had much to do with the want of success. While I have not made any suggestion on this point of my own, still I would heartily endorse the resolutions offered at our last meeting by Dr. Long, or any other action which will promote the object so much to be desired.

Notwithstanding the appeals that have been made by your presidents in behalf of the North Carolina Medical Journal, it does not receive at the hands of the profession that cordial, efficient support which it deserves. Its editors have made it a success by their own hard work under most trying circumstances, and in spite of our lack of coöperation. Certainly every physician in the State should be a subscriber, and every one who can do so should contribute to its pages. State pride alone should compel this, if the fact that it is the organ of our Society fails to be a sufficient incentive. It is appreciated, as it deserves to be, outside of our State, and is attracting contributors of position who value it as a means of communication with the profession in the States. And as our Society extends its usefulness the Journal will advance with it and be the exponent of the intellectual power of its members. It is an engine of great power, and utilized as we could utilize it, it would become a necessity in every medical library. The fact that it is the every-day experience of the physician which is worth recording, has been often urged before, but it cannot be too frequently called to our attention, until it bring forth fruit. A distinguished professor in a medical college said to me that, comparing the working of our Society with the one with which he was connected in a large city, what most forcibly attracted him was the fact that we came together each one to tell, it might not be in polished language, but in his own simple way, what he had observed and what he had individually done in the year past, asking for criticism and desiring to compare

results, not for mere personal advancement, but for the benefit to be carried with him into his work for the next year; whereas in the cities each comes as a teacher with his own theory to establish and impress upon others. This certainly is complimentary to our Society, and all the more so because of its truth.

Many of us look forward to these annual gatherings with the greatest interest on this account. We expect to confer with those of our friends in whom we have confidence as to points of practice. We come to learn something, to have our minds refreshed and to go back to our work better fitted for the trials of the coming year. I am sure that no one, whatever his age, or experience, or self-reliance may be, ever attends closely to the debates, the reading of essays and papers brought forth from the experience of old and young men in the Society without feeling that every member should do all in his power to contribute something to the interest of these meetings, and more feeling thankful for the opportunity thus yearly offered of adding to his store of useful knowledge. With a desire to increase the usefulness of the Society in this direction, more prominence has been given every year to original papers, and our Secretary has made a good step in advance in attempting to have each paper assigned to a particular hour. When it is understood generally that the Secretary is to be notified in full time this can easily be accomplished by referring these papers to their respective Sections, and this will add to the value of the "Transactions."

Among the many changes which take place yearly the saddest are those which remove from our ranks fellow-members whom we have been accustomed to greet year after year, and who have added to the measure of our success and enlivened our meetings with their always welcome presence, but time will bring us all at length to the day when we must lay aside our earthly work, as our departed brothers have done, and close our eyes to open only upon the brighter scenes of the celestial streams. May we leave a record as bright as they have done, and have it said of us, as we can truly say of them, that they lived full up to the motto, which should be the motive for all, "*Aliés in serviendo consignor.*" We add to the roll of honor the names of Drs. Cain, Lindsay, Long, Bryan, Meares, Manson, Dillard, Jackson, King, Rountree and Cook—all men of real worth, whose memory the Society will deem it a privilege to honor. But while we look upon the loss of these with sorrowing hearts, let us

not be forgetful that we have great cause for rejoicing in the merciful restoration to health of one whom we all love as a brother, and whose presence here to-day fills all our hearts with joy unspeakable.

The meeting of the International Medical Congress, held in Washington in September last, marks an era in the history of our profession. Gathered from all the civilized nations of the globe—representative men of the profession, united with us in the furtherance of the glorious cause of medical progress; from our mother country first, whose power has spread o'er land and sea, whose men of letters speak in words of thoughtful strain and deepest learning to men of every language and every creed, whose Christian influence hath been felt where'er the love of religious liberty is prized, who has given to our profession men whose names must be immortal; from Scotia's sunny hills, where dwell the loyal clans, which have given to the Old North State some of her best and brightest jewels; from the Emerald Isle, for whom our hearts go out in pity that peace is not within her borders; from sunny France, who has solved the problem that liberty, equality and happiness come quickly to the hand that dares; from the Fatherland, which has made its impress on the world, looking on in wonder at the loftiest statesmanship the nations have ever seen; and Italy, the beautiful land of song—aye, every land where progress and truth and right is loved, hath been sent unto this gathering of the brightest of her sons to join with us in this work, which has for its end the advancement of that science which alone is seeking to destroy all that is inimical to physical and mental manhood. We wonder at the vast array of learning, while we stand awed amid the throng of jewelled knights of our profession, bearing about them the insignia of royalty, evidences of deeds of bravery when, amid the whistling balls and bursting shells, they stood cool, calm and undaunted, bending over the wounded and the dying, without the stimulus of the fight to sustain them, but upheld alone by that one desire, absorbed in that glorious work of saving life or easing the bloody path to the grave (or else it may be that some of these beautiful decorations came to the patient student after weary years of nights of labor, from whose brain has burst forth some thought like that of Jenners to save for all time to come millions from hideous and loathsome death). And yet there stands among these honored ones one clad in the plain garments of the masses, with no jewels to mark his advance in the

battle, no outward evidence of glory won, whose deeds, though unheralded, have been as mighty as the mightiest, and whose achievements have added lustre to his profession, grand in his simplicity, the noble American citizen doctor. Ah, indeed, have we just cause for pride that in our own country we have been able to show to the world our power! meeting all comers in the lists where all have equal right to tilt, where no lack of rank or wealth excludes, but where true manhood tells, and where mind, mightier than the sword, copes with mind, and fires of living thought stream forth till the world, attracted by the brightness, draws near to listen and to learn.

It is very gratifying to us to have our medical friends from our sister States show such cordial interest in our Society. Their presence with us is hailed as an evidence, in some measure, of our success. Certainly, while their words of wisdom edify us, their kind words of sympathy should encourage us to the doing of still better things. We greet them, therefore, as friends and coadjutors in the work before us, and wish them to know that they are always heartily welcome, and we trust they will always feel so fully a part of us that they will not hesitate to join in our debates with perfect freedom, knowing that we are the obliged party.

I have been so much impressed by the reports from our insane asylums of the number of insane outside of hospitals that I feel I must ask this Society to take some action which may have its weight with those in authority. I am aware that we can do nothing directly to ameliorate the condition of these men and women all over the State who are bereft of reason, and who are so loudly appealing through their very helplessnes to the State for that guardianship which is their right; still, as citizens who have upon us something of the responsibility, we can enter our protest against the unfeeling, inhuman neglect of these unfortunates whom God has placed at our very doors, that we might honor Him by taking care of them and doing all in our power to induce our legislators to make that provision for their protection and cure which they have refused within the last two years to do. There are now in the Eastern Asylum at Raleigh two hundred and eighty—more than the number which the Institution should accommodate or can provide for well. In the Asylum at Morganton about four hundred, certainly not more than seven hundred, white insane under hospital treatment in the State.

"The last census gave the whole number of white insane as about sixteen hundred, including those in the asylums. The eight years of this decade has certainly increased the number considerably, so that now there are not less than one thousand white insane in the State outside of the asylums, one-half of whom, it is safe to say, could be cured or benefitted by hospital treatment." When you ask me, "Are these one thousand people cared for? need you ask me? Have you not visited your jails and poor houses in your respective counties and seen them there? Can you not find them huddled in cells all over the State with the felons of the land? Or if any county has provided for them by erecting houses for their use, what, with very few exceptions, is the character of these houses? Imagine—no, there is no need of imagination—it is a dreadful reality that the insane in some instances have been confined in narrow cells, without one spark of fire, the whole winter long. Imagine a poor, demented woman, who, in her paroxysms, would tear every vestige of clothing from her body, being protected from the cold by having her cell filled with hay, in which she would lie down like a wild beast. Think of the fact that, under the best circumstances, where they are well fed, can be properly clothed, and these houses are heated as well as log houses can be heated, that to be insane and in confinement means solitary confinement for all those who are at all subject to periodical excitement, and then look at the contrast. I found on my last visit to the Asylum at Raleigh, when at that time there was not a single one among two hundred and ninety-five then under its sheltering care who was under mechanical restraint of any kind. Think, too, of the fact that out of the number, treated carefully, what a large proportion are either cured or relieved, while those under county care are "daily passing, by steady stages, downward to the level of hopeless alienation in such accumulating numbers, that humanity sickens at the conception, both at what they endure now and what life has in store for them, and for all who hold them dear." (Report of the Superintendent of the Raleigh Insane Asylum.) At the last Legislature a plan was proposed for the extension of the Asylum in Raleigh which would have done much towards placing under medical care that portion of the insane who could probably be benefitted by treatment. And why, you ask me, did not the Legislature do something towards this good work? Because (the only excuse ever offered) it would cost the State $300

per capita for five hundred and sixteen patients. One is at a loss to account for such action on the part of men selected by the people of a free and enlightened country, because of their presumed ability to grasp and deal with questions of the highest importance to the well-being of the State. Yet, to our shame be it said, this was the edict of the last Legislature, that these helpless beings should not have the protection and care they were entitled to. Ah, how different if these had been one thousand voters in some corner of a county represented by any one of the men who voted against the measure. It does one good to know that there were good and true men who spoke out boldly in behalf of these unfortunates, and in no uncertain words; we honor them, though they could not prevail.

Now, my friends, this class of people, so often under our care for treatment, demand at our hands, as a profession whose duty it is to do good and to fight for the right fearlessly, and without regard to the fact as to whether it is popular or not, that we espouse their cause and aid in every way in our power to bring to the light the truth as to the condition of the insane in every county of the State. And even if every county is doing all it can to make them comfortable and to restore them to reason, still the fact remains that this burden should fall on the whole people, and further, that nowhere else but in an asylum under the supervision of one expert in these matters can the same care and benefit be obtained. Truly, I believe there would be but one voice throughout the State if utterance could be given to it in regard to the enlargement of our asylums, and that would be to build them without delay. Build *them*, and not costly palaces for State officials.

I cannot close without a word to the younger members of the Society. I feel in such full accord with them, and in my heart desire their advancement so deeply, that I cannot forbear, at a time like this (when so much depends on their energy and zeal), to ask them to put forth their full strength and stand, against all comers, as the champions of this Society. See to it, my young friends, that only those who attend these annual meetings and are working for the advancement of its true interests shall fill its offices Place no man in a position of any kind who is not true to his obligations to the Society, however brilliant he may be, however fascinating, however learned. He should love, cherish and sustain and bring all his faculties to enhance her power. Seek for leaders—good and true

men—who love their profession and who sustain its honor. Think what it means to be among the great and true men of our profession. Look now across the waters to Germany at that grand man fearlessly facing death, working for the welfare of his people in the midst of his suffering. Who are these standing by his side, by whose sufferance (humanly speaking) he lives? Men of our profession—men of intellect and worth, greater than the monarch whose life is prolonged by their untiring watch. Is it not worth the striving to make oneself worthy of a calling which lifts its votaries to such heights of usefulness and power? See to it, then, that your life-work shall only add to the power we already have, and see in this Society a friend who will lead you by the safest path to the position you desire to reach.

You will have observed that throughout this address I have spoken of the need of enlisting the people in all our work in which they can aid us. This has been done in no spirit of the demagogue, for I am far, very far, from being a politician, but I love my profession, and I desire every man outside its pale to honor and respect it, and in order to this I would have them see the purity of our motives and the object of our work, so that, consulting together for a common cause, we may bring to a speedy and successful termination all our public work, and not only elevate the people, but ourselves, our profession and the grand old Society we love with all our hearts.

SOME FREAKS OF MALARIA—REMARKABLE HYPERPYREXIA.

By N. B. Herring, M.D., Wilson, N. C.

(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

"*Neither in the interest of truth, nor for the benefit of man is it necessary to assert what we do not know.*"—*Agnostic.*

To assert what we do know is rendered painful at times because of the incredulity of our hearers, yet the converse of our motto would make it imperative upon the medical man to state facts regardless of criticism.

I am fully aware of the infinite opportunities for mistake, and I grant that Munchausen has some admirers even in the brotherhood of doctors, yet the validity of truth is affected neither by belief nor non-belief; and from this *point d'appui* I make the assertion, without the fear of contradiction, that this case did occur as reported; the treatment is no stretch of the imagination, and the result is good.

Notwithstanding the patient is my own daughter, and notwithstanding the emotional tensions of parental affections, of hopes, fears and despair, a well seasoned thermometer records the truth, and pure quinine cares naught whether it kills or cures.

I make this report asking no one to believe it, for I cannot ask others to do what I could not do myself, yet I make it in the interest of human life, for there is a bare possibility of a repetition of the scene. Whoever reads it will be likely to remember it, and should a similar case present itself gratitude will be felt for this incredible story.

To that class of physicians who, with the pride of opiniontry, style themselves "conservative," and whose *Materia Medica* comprises a little of this and a little of that, a blunderbuss load of placebos administered with "expectancy," this statement, if believed at all, will be looked upon as little less than a crime; but to the true disciple of Æsculapius, to the doctor who occasionally saves life by taking the cure entirely out of the hands of Nature, it will appear logical, scientific, just. It will do more. It will set him thinking about the teachings of physiology on the sources of animal heat. It will do away with the furnace theory, the theory of combustion and metamorphosis of tissue. It will relegate to its proper place heat production, as well as other vital functions, to the central nervous system. The rapid changes in the vital processes can be accounted for upon no other hypothesis.

The cough, the gape, the twinge in the lips, the prickling in the toes, the electric flash up the spinal column, the cyanosed countenance, the evanescent headache, each and every one indicating a chill, as evinced by the rapid thermometric changes, could not be produced by causes acting extrinsically to the brain and spinal cord. And besides, the great organs of supply and waste, the stomach, liver and kidneys, the alimentary canal, all being in a normal condition, performing their functions in accordance with perfect health would preclude the idea of lesion, either organic or functional. The heart alone attempted to follow the erratic course pointed out by the ruling nerve centers.

In five seconds time after one gape or sneeze, its action would increase from ten to twenty beats per minute, and in the intervals of the toxic paroxysms its rythm would be as smooth and regular as in the finest health.

To watch her sleeping the quiet sleep of innocence and maiden purity, her countenance suffused with the glow of perfect health, lips tinted with the carnation hue of pure blood and active capillary circulation, pulse full and soft at seventy-five, skin moist, temperature normal and respiration full and uninterrupted; and to know that she was menaced by a fiend the most subtle in the earth, whose approach would be known by a cough, a gape or a sneeze; whose presence would darken for a moment the countenance, and whose machinations would set up such frightful irregularities as to awe the most stoical and callous practitioner. I say to see this is to get a glimpse of the pyrotechnics of death. To see a thermometer run 3° below normal, and in fifty minutes go 18° above normal, is to see the shadow of death itself. What is the explanation? "Can it be inflammation? Is it possible that this process can be extinguished and relighted—extinguished and relighted again so suddenly? Who can conceive of an acute and fatal inflammation of the mucous membrane of the stomach, with considerable appetite, or of the brain, with a perfectly sound intellect and without headache or other cephalic uneasiness? Inflammation, in a certain degree, may coexist with other phenomena, but it constitutes, in most cases, no portion of the danger, for all the difference between death and a speedy restoration to health, lies in a few (many) grains of quinia."—*Wood on Pernicious Fever.*

What is a chill? The "brunstane clootie" of Burns, the "cloven hoof" of the nursery?"

"Yea, this 'hangie' is a spirit—a heartless soul,
Who, at his pleasure, can shape his form,
To suit the company he keeps, and drain the bowl
With bacchinals; or, on occasion when the storm
Of reverend furor sweeps away the self-control
Of men, and leaves their minds only in alarm,
At the horrid scenes depicted by the preacher,
This chameleon sprite often dons the garb of teacher.

"This protean strength to demons only granted,
By means of which, *incognito* they walk,

And hie to places where they're not wanted;
There, to physicians and others they talk
Of knowledge, by quacks and mountebanks vaunted,
'Gainst science and logic, endeavoring to mock
Every effort at truth, as it comes through reason,
Persuading even the doctor, that to think is treason."

On the 29th I received the following letter, dated Hollins, Virginia, January 27th, 1888:

DR. N. B. HERRING:

Dear Doctor:—I write to give you some insight into the history of the present sickness of your daughter, who is a student at this Institute. She has now been sick for a little over a week. She first presented herself for treatment for neuralgic dysmenorrhœa. Her menstrual flow came on all right, and the pain from that cause has disappeared. She is now suffering from remittent fever. It is not making her very sick, but there is considerable soreness about the liver and the ileo-cæcal valve. Her temperature ranges from 97½° to 103°. This is not morning and evening temperature, but is a kind of remittent temperature. She will have 97½° about 9 o'clock in the morning, the temperature will rise to 103° about 10 o'clock and stay at that point until 1 o'clock P. M., and then fall to 97½°, and no more fever for that day. Quinine seems to have no influence in breaking up the daily return of fever. I have been giving her about 35 grains quinine in twenty-four hours. Her heart's action is good, and she does not seem to be very weak. Her tongue is moist and not much coated. Appetite is fair. Yours, very truly,

RICHARD T. STYLL, M.D.

I answered this letter by return mail, stating that I could conceive of no pathological condition except intermittent fever capable of producing such symptoms, and advising Dr. Styll to anticipate the rise of temperature four or five hours by giving 30 grains of quinine in hourly doses of 10 grains each.

The next day I received the following telegram, dated 12:30 P. M.:

DR. N. B. HERRING:

Miss Lucy has Peri-uterine cellulitis. Temperature 108°. Would like you to see her. RICHARD T. STYLL, M.D.

I telegraphed immediately that I would be there on the first train. Before the next train I received this additional telegram, dated 3 : 48 P. M. :

Temperature 99½°. Come to see her.
C. L. Cocke, Principal Hollins Institute.

I could only console myself a little by disbelieving the telegrams. On Tuesday 31st, at 9 P. M., I arrived at Hollins. Found the young lady in bed without fever, comfortable and bright as a dollar. Went to bed with instructions to wake me at 5 o'clock the next morning. Promptly at that hour I gave her 10 grains of quinine. In less than ten minutes she had a chill. I thought then I would determine for myself how it was acting, and, after giving her a small dose of calomel and podophyllin, commenced a thermometric investigation. The following report is accurately true, being recorded without delay as it occurred. After the second chill the record was made by keeping a thermometer constantly in the axilla, only taking it out long enough to note the change, which occupied about ten seconds each time. The thermometer was examined every five minutes, but only the changes recorded :

8:00	o'clock,	A. M.,	February 1st, temperature,	99
9:00	"	"	"	106
10:00	"	"	"	106⅓
11:00	"	"	"	109
11:15	" second chill.			
11:30	"	"	"	97
11:40	"	"	"	96½
11:45	"	"	"	100
11:50	"	"	"	100 4-5
12:10	" P. M.	"	"	99
12:15	"	"	"	99½
12:20	"	"	"	100½
12:30	"	"	"	100 4-5
12:45	"	"	"	109
12:50	"	"	"	100 4-5
1:00	"	"	"	101
1:10	"	"	"	100 4-5
1:20	"	"	"	100 3-5

1:40 " " " 100 4-5
1:50 " " " 100 3-5
2:10 " " " 100
2:25 " third chill. " " 97
2:30 " " " 97 4-5
2:35 " " " 100 2-5
2:45 " " " 100½
action on bowels.
3:05 " " " 106
3:10 " " " 107½
3:15 " (pulse 150) " " more than 115
3:20 " " " 113½
3:25 " gave 10 grs. quinine. " 105
3:30 " " 100 4-5
3:50 " gave 10 grs. quinine.
4:05 " perspiration, intense headache and active cerebral congestion. Gave 30 grs. bromide potas.
4:10 " morphine ¼ et atropine 1-100, hypodermatically.
4:15 " " 100 4-5
4:35 " pulse 150. Gave 10 grs. quinine.
4:45 " pulse 154. Temperature, 100 4-5
5:00 " profound coma. Ice to head.
5:30 " wild delirium, amounting to mania. Temp, 60
6:30 " nearly rational. Said she was dying.
7:00 " Temperature, 98½
7:20 " " 99
7:30 " gave 5 grs. quinine.
8:30 " gave 20 grs. bromide potas.
10:00 " gave 5 grs. quinine.
11:00 " gave 20 grs. bromide potas.
11:20 " Temperature, 98 4-5
11:25 " fourth chill.
11:35 " " 99 1-5
12:00 " midnight. Gave 10 grs. quinine.
1:00 " A. M., Feb. 2d, gave 20 grs. bromide potas.
3:00 " gave 10 grs. quinine.
5:20 " gave 20 grs. bromide potas.

5:50	" fifth chill—very slight one.	
6:00	" gave 10 grs. quinine.	
9:00	" gave 10 grs. quinine.	
12:00	" noon, gave 5 grs. quinine.	
12:20	" P. M., sixth chill.	
4:00	" gave 10 grs. quinine.	
6:00	" bad headache and blindness. Mustard to nape of neck and temples. Gave 10 grs. antipyrin.	
8:00	" gave 5 grs. quinine.	
10:00	" gave 5 grs. quinine.	
8:00	" A. M., Friday, 10 grs. quinine.	
10:00	" gave 5 grs. quinine—blindness.	
11:30	" chill.	
12:00	" M., temperature,	99 2-5
4:15	" chill. "	100 1-5
7:15	" chill. "	99 4-5
8:00	" A. M., Sunday, temperature,	96
9:15	" " "	98½

From this time up to Tuesday morning 7 o'clock I attempted to reduce the quinine. From 7 to 8 o'clock I distinctly saw that death would end the contest sometime during the day if I did not push the quinine to the point of getting in between the chill and causing death from the remedy. I arrived at this conclusion from a very careful study of the malady during six days and nights, during which my undivided attention had been given to the case. On the Saturday before I had thought to arrest the paroxysms by additional aids to the quinia salts. For two days I had alternated the quinine with chinoidin and cinchonidia sulph., given arsenic and tinct. iron in large doses every four hours, and had only succeeded in bringing down the chills to regular intervals. One hour and a half before the time for it on Saturday evening I had her placed between the blankets, put bottles of hot water all around her, and forced her to drink large quantities of hot sage tea. She soon broke out in a profuse perspiration and laughed at the ridiculousness of her situation. In this condition, with her pulse at 75, temperature normal and no more sign of disease than the most perfect health, the chill came with a flash up the back, tingling in the lips, a dark shade over the countenance and a momentary headache. The damage was done all in a moment, and the treatment was a failure. I felt very much

discouraged, and then thought perhaps I could wear them out with teasing doses of quinine, these teasing doses being from 60 to 80 grains per day. On Tuesday morning, it being the seventh day since the terrible ordeal of the previous Wednesday, between 7 and 8 o'clock she had three distinct paroxysms, each one with a lowering of the temperature from 2 to 3½ below the normal, and each one with a cough, gape and cyanosed countenance. The temperature had been held down below 100 since the large doses of quinine had been commenced. I felt that if the evening was allowed to come without an interruption of the paroxysms she would surely die. The question was then centered down to one thing alone—QUININE. How much can she bear without killing her? Between arresting the chill and death was a very short space. That space must be filled with the remedy. We had ceased to consult books. Our experience was then worth the combined experience of all the medical world besides. We had passed way by the danger limits. We had observed that every time she complained of blindness all her other symptoms were better. Only a moderate degree of deafness had been produced by the largest quantity given. Flint's case, where total deafness and blindness had been caused for eight hours in a man from the administration of 2 drachms in twenty-four hours, had no influence to deter us from what we did. Our objective point was total blindness. Here is what it took: From 8 to 9 o'clock, 12 grains; 9 to 12, 10 grains; 12 to 6, 70 grains; 6 to 8, 6 grains; 8 to 12, 16 grains; 12 to 6, 24 grains; 6 to 8, 6 grains. In all, 144 grs.

At 6 o'clock P. M. she was stone blind. I held a bright lamp close to her eyes and she just could distinguish it. The blindness began to go away in less than one hour. The paroxysm was interrupted and a life was saved. From this time up to Sunday, the 12th, when I left Hollins, she took 96 grains quinine every twenty-four hours, continuing to get better every day. On Friday, the 10th, she sat up nearly all day, and on the 11th went to the dinner-table and ate her dinner. The walk and excitement raised her temperature to 100°.

On leaving her at school I acted, for the first time, against my judgment, but considering her safe by a continuance of the treatment, I was prevailed upon to leave her. From this time up to the 25th February, the day she got home, extracts from correspondence, in the order of their dates, will throw the greatest light upon the

case. She writes under date of 13th: "After you left yesterday I was taken with a very severe headache, and in the evening had another chill, but I think it was the slightest one I have had yet. This morning my head is a great deal better, but have a very bad back-ache. I didn't cough any last night. Dr. Styll has increased the quinine." In her letter dated 14th she says: "You wrote for me to take apiol capsules when I expected to be sick. I was taken sick yesterday and suffered a *great deal* with my back. I don't think I ever had as sharp a pain as I did all day yesterday. I had another slight chill, but Dr. Styll increased the quinine immediately. I haven't coughed any in the night since you left—cough a little every day about the time for my chills. Dr. Styll has stopped the iron and said I must not take the pills you sent me in three or four days. I have very little headache now. You wrote for me to take the iodide, but the doctor said I must not take that either yet—said you would understand why." 15th: "I received the box of medicine this morning. Dr. Styll said I must not commence on the iron pills in three or four days longer. He stopped the quinine last night entirely and is not going to give me any to-day. I suppose the reason is because I was so weak. I think I was weaker yesterday evening and last night than I have been since I have been sick. I feel a great deal better this morning, and have not had any more chills. I commenced on the iodide this morning. Dr. Styll puts fox blood (?) in it. Miss Tinsley said he gave it to regulate the action of my heart." 16th: "I wrote yesterday that Dr. Styll had stopped giving me quinine, but last night about 7½ o'clock I had another chill and my fever went up to 104. I didn't have any headache with it at all. Dr. Styll said he would write to you to-day. You must not be uneasy about me, for I am feeling better than I have since I have been sick."

DR. STYLL'S LETTER.

"*Dear Doctor:*—I send you this as a report of your daughter's sickness since you left Hollins. After your departure she went to her own room. About 5 o'clock in the evening I went to see her, and found her with chill and headache. Temperature 97°. I sent her back to the sick room, and gave 10 grains quinine every two hours. The following is the thermometric record since: Monday, 13th, 8:45, 98¾; 9:45, 97½; 10:15, 97½; 10:45, 99 1-5; 11:45, 98½; 12:45,

96¾; 12:55, 99½; 1:15, 98½; 4 P. M., 98; 5 P. M., 99. Kept along about the same till Tuesday, 14th, at 10:45 A. M., when it fell to 95; 11 o'clock, 99; same till 3:15, 96 2-5; 4 P. M., 99 2-5; 5 P. M., 97; temperature remained at this point till 8 P. M. Tuesday, 14th. Though there was no blindness nor deafness, there was such a persistent lowering of temperature, such weakness of circulation and such a sensation of general weakness that I feared collapse, and deemed it unsafe to give more quinine. I ordered two teaspoonfuls of whiskey every two hours with 3 grs. of monobromated camphor. Severe pains in back and back of head. Wednesday, 15th, 7:30 P. M., temperature fell to 95—chill; 8 P. M. 104; 10 grs. quinine every two hours resumed. Temperature soon went to below normal and remained so. To-day's record up to this writing (7:35), 96½, at which it stood till 8:30, when it went to 99 2-5, where it stood till 9:50, when it fell to 94 2-5.

Her catamenia appeared Monday about 2 P. M.. I attribute part of the lowering of temperature to its presence. I gave no apiol because catamenia is normal. Discontinued iron on account of catamenia. I have given her the whole of ounce of quinine you left. I don't like the persistent low temperature. I begin to suspect that, whilst malaria was the primary trouble, we have more than that to deal with.

"Yours, very truly, R. T. Styll."

I answered this letter immediately, and insisted, in very earnest language, upon a continuance of the quinine without interruption and regardless of symptoms. From what I knew of the case and from this correspondence, I thought I could see that causes were attributed to effects and effects to causes that had no existence. From a further study of the case I am still more confirmed in this opinion.

On the 17th she wrote as follows: "I know you are tired of my writing about my having chills, so this morning I can say that I didn't have any symptom of one yesterday, and feel better to-day than I have since you left. Don't have any headache, but am not entirely well of my cough. I saw in the paper this morning that Mrs. Wash. Taylor was dead. It got me so excited over myself that I imagined I was going to die immediately."

Dr. Styll, on a postal, wrote same day: "Miss Lucy is much better to-day than any time since her sickness. I think low temperature is due to catamenia and quinine."

18th: "Miss Tinsley persuaded me to telegraph to you this morning—said she was afraid you would be uneasy about me after getting Dr. Styll's letter. I am a great deal better this morning, and expect to go over to my room this afternoon. I have been sitting up all day. Haven't had a chill in two days. I have been very much worried all the morning after receiving your letter—I am so afraid you will make me go home. Now, I don't want you to think that I am not writing everything about myself because I don't want to go home, for I certainly am." (She was trying for the music medal.)

To her mother, on the 20th, she wrote: "I am getting on splendid now, and I will soon be as strong as ever. Pa was very anxious for me to go home, but I thought it better for me to remain at school."

A postal card from the nurse of same date said: "Although Lucy has written, I think it is best to write too, to let you know how she was yesterday. She seemed better in the morning and was up and dressed. Her temperature was 98½ up to 10 A. M., when it went down to 95; then it went to 101; at 12:45, 95; at 1 P. M. 105; at 1:30 it was 107; at 2:15 it was 99¼; at 2:30, 98¾; fifteen before 3 106; at 3:15, 99. After that it remained about normal. This morning she does not seem as bright as usual. Her temperature has been normal (so far 12:30) this morning. Her pulse was 140 at 1 P. M. yesterday. N. TINSLEY."

On the 21st she wrote as follows: "Mr. Cocke came up this morning and said you were such a positive man that he didn't know what to do about my going home. I am not having chills now, but my temperature is not right yet. Dr. Styll says I am doing better now than I have since I have been sick. Mr. Cocke seems to think that you want me to go home immediately. If I get any worse I want to go, but I am getting better every day. My temperature went up to 107 and my pulse to 140 Sunday, but that was because I exerted myself entirely too much."

Another letter from Dr. Styll, dated February 21st, says:

"*Dear Doctor:*—Yours of the 19th inst. was received by to day's mail. I have not at any time thought there was any other etiological element in Miss Lucy's case than malaria. The remark I made was

entirely in referrence to pathological conditions. I believe that all of her present trouble is due to a disorganization of the cerebro-spinal substance; a pathological condition so well described by Councilman in his record of results obtained by him in his researches into the pathology of malaria. As to the suspension of quinine, I thought I had fully given you my reasons for that step in my last. The suspension was only for a sufficient time for a reaction from the profound depression which the quinine had produced. I verily believe had I given her another dose at that time she would have been beyond the reach of further medication. As soon as reaction was fully established I returned to quinine, and have steadily kept it up ever since. The 104° on Wednesday was not due to suspension of quinine. She takes iodide of potass and iodide of iron pills just as you suggested in your letter. She is allowed to eat anything she wishes. She has had no chill for a week to-day. I assure you there has been nothing neglected in the management of the case since your departure. It is my opinion that she is surely and rapidly establishing a convalescence. As to allowing her to go out anywhere she pleases, I must say I do not approve of that line of practice in this case. My reasons for not approving this is that the damage done her nervous system has been so severe that she is not able to stand the tax she wishes to put upon herself, and I am not willing to run the risk of syncope involved in the indulgence. The following record will give you some idea of the impression such an indulgence makes upon her: From Wednesday until Sunday her temperature ranged from 97½ to 99, with pulse between 80 and 90. Sunday, A. M., I decided to allow her to go to dinner. She dressed herself early Sunday morning. At 10 A. M. her temperature went down down to 95; at 12:45 it was 101; at 1 it was 105; at 1:30 it was 107; her pulse was 1:40. I put her back to bed. By 3:30 she had gotten back to her condition previous to getting up, and has steadily improved ever since. At this writing her condition is perfectly normal. I must insist upon giving her nervous system a chance to reëstablish itself. If there is a well-established principle in therapeutics it is the necessity of rest in cases of impairment of of the nervous system.

"Yours, very truly,

"Richard T. Styll."

I now determined to have her come home, and sent her brother

immediately for her. They arrived at home on the 25th at 4 o'clock P. M., and just as she entered the house had a severe paroxysm before she had time to take off her wraps. I prescribed 10 grains quinine every three hours and 30 grains bromide sodium every four hours with morphine hypodermically. On Monday, the 27th, I used one of Warner & Co's hypodermic tablets of morphine in biceps muscle of right arm. She grew rapidly worse, and I began, for the first time, to doubt the propriety of the plan of treatment. I had never yet had a clear conception of the pathology of the case, but my confidence in the remedial virtues of quinine, and its power to finally triumph over the morbid process, was almost that of blind faith. In fact, it was the only remedial measure in which I could place the least confidence. As she grew worse doubt took possession of my mind, and the torture of indecision, with death staring me in the face, rendered my position more unbearable than the terrible Wednesday when I first saw her at Hollins. What could I do? Call a consultation? I did not want it. I knew more about the case than any physician I could get. The wild and erratic movements of her temperature, the protean forms of all her other symptoms and the frightful changes from apparent health to the verge of death, so rapid and so irregular, could but render confusion worse confounded. In this unhappy state of mind I could think of nothing else. I was afraid to leave her for an hour, yet it seemed I could do no good by staying with her. My remedy had failed and my faith was dead. Beyond the limits of my own knowledge evidence becomes inoperative, and the marvellous fails to attract or console. I am aware that medical practice, in its very nature, is empirical to a great extent, but there are underlying principles which no properly taught physician can ever repudiate; so, in the extremity of my resources, I appealed to a higher court, and the verdict enlightened, if it did not exonerate me. I wrote to Dr. Hammond, of New York, stating the case pretty fully. In the meantime, I asked my friend Dr. C. E. Moore to visit her, which he did, and spent a good deal of his time for a week at her bed-side. We decided to thoroughly narcotise her with opium and bromide. Under its influence she slept most of the time for two days and nights, growing worse all the time. She ceased to eat, and an alternate spastic and paralytic condition seemed to pervade her whole body. One side of her face would be red and hot, the other pale

and cold. Her eyes would be red and burn like fire for a few minutes, and we often counted her respirations 50 to the minute. Her pulse would range from 66 to 150. I have seen a scarlet redness in her throat, involving the whole pharynx, which lasted only ten or fifteen minutes. Her tongue would have a dirty white, or thick yellow coat on it, and in half an hour be clean, with all the appearance of health. General prostration would be so complete at times that she felt almost too weak to breathe, and in one hour she would want to get up and dress. A sensation of dropping in the right ear has annoyed her at times very much. Her cough has presented all the types of every lung disease. Bronchitis has been simulated over and over again. Intelligent physicians have insisted on its existence, and nothing but watching at her bed-side has dissipated the delusion. Her tongue was black as ink one morning and resumed its natural color during the day. The explosion of a bottle of fermenting mucilage on the mantle-piece carried her pulse up to 160. A sudden ray of sunshine projected into the room one cloudy day, caused her to gasp for breath, and ran her pulse up so high she could not count it. She observed to me one day that everything worked like her temperature. She eats heartily, has lost no flesh, sleeps well and looks as well as she ever did. She has become an expert at noting symptoms, counting pulse and taking temperature.

On Wednesday, the 29th of February, her temperature went down to 94° and remained there over an hour. This was in the forenoon. That evening it went up to 115° or more, and stayed half hour. On the 1st day of March, at 9 o'clock P. M., a Hicks thermometer that I had been using three years, the scale of which numbered 115°, and the bore, at least two degrees above the scale, with the bulb in the axilla, *burst from the heat of her body.* The column of mercury was at the very top of the tube when she took it away, showing that the bulb gave way under the pressure of the expanding metal. This high temperature lasted only four or five minutes. She said that she felt like she was burning up, and thought it would have killed her in a short time. These fluctuations of temperature produced all sorts of trouble. They destroyed the appetite, caused restlessness, wakefulness, mental depression, and were always succeeded by the thousand-and-one symptoms so characteristic of the hysterical state. But, unlike the phenomena of hysteria, they pro-

duced the impression of imminent danger to vital structures. No one could witness them without fearing disorganization and speedy dissolution. Like the oscillations of a pendulum, where an added force is applied at each reciprocating motion, it appeared to be only a question of a little more time and a little more force to extinguish the vital spark forever. On the night when the thermometer gave way to the excessive heat I verily believe that her powers of resistance had reached their extreme limit, and one more paroxysm, with the same ratio of increase, would have closed the scene in death; yet, strange as this assertion may appear, after this terrible experience my spirits were light, my confidence restored and my dead faith resurrected.

She had swallowed little or no quinine since her return home. This I found out on the 1st day of March, and this was the key to the cause of her rapid decline. At 11 o'clock P. M., two hours after the thermometer broke in her arm-pit, I gave her, and *saw that she swallowed it*, 10 grains of the salicylate of quinine with 5 grains chinoidin in powder. Two hours after she took 10 grains sulphate quinine, and these doses were kept up alternately, each every four hours, until Friday, the 9th. On Monday, the 5th, in addition to the quinia salts, she took 5 grains resorcin every three hours. On the 6th I received the following letter from Dr. Hammond, dated New York, March 24th:

Dear Doctor:—Absence from the city has prevented an earlier reply to your letter. * * * I think the morbid process is centered in the sympathetic system, and that it consists of an alternate spastic and paralytic condition of the vaso-motor nerves. I have never seen so extraordinary a case as that of your daughter, but I have seen several similar ones, and they were cured by the remedies I am now going to mention. First, I would give her 7 grains of antifebrin or 10 grains of antipyrin every four hours until four or five doses are taken. Second, give at once 100 grains of bromide of sodium dissolved in half tumbler of water, and repeat it in two hours unless she sleeps or the paroxysm is arrested. After that I would give 20 grains of the bromide of sodium four times a day until she is thoroughly under the influence of the drug. Third, apply a blister to the epigastrium immediately over the solar plexus. It might be well, also, to apply one the whole length of the spinal cord so as to act upon both the sympathetic nerves.

These may seem to you like strong measures, but the disease is such as to require very active treatment. At the same time I do not think you need be greatly alarmed, for I am sure there is a strong hysterical element in the case. She may die, or, for all I know, she may be dead now, from exhaustion. *But I do not think so.* I shall be very glad to hear from you again and receive good news in regard to the case.

I think you might cut short an attack, or rather entirely prevent it, by giving the nitrite of amyl by inhalation—5 to 10 drops being rubbed between the hands and held to the *mouth* so she will inhale it quickly. Yours, sincerely,

WILLIAM A. HAMMOND.

On Friday, the 9th, she being much better, I changed the medicine to salicylate cinchonidine 10 grains and sulphate quinine 5 grains in one dose. This I gave every four hours, alternated with 10 grains resorcin. There had been no more fluctuation of temperature above or below normal until to-day, when it stood 100½ for six hours. All this week her arm, into which I injected Warner & Co's tablet, had behaved as strangely as her temperature and other symptoms. It was inflamed and painful at times, and at others it would seem to be getting well. The swelling would nearly all subside, the pain and redness would fade away, and for several days I was in doubt as to its being inflammatory or neurotic. I had given her some irregular doses of antipyrin prior to this time, scarcely knowing why, but after receiving Dr. Hammond's letter I determined to fully test its efficacy. Accordingly, on the 10th, at 8 A. M., I commenced with 10 grain doses and repeated every four hours, slacking up the cinchona preparations without entirely stopping them. At 6 P. M. temperature 101. Gave resorcin and antipyrin only.

March 11th, temperature at 6 P. M., 102.
" 12th, " " 103.
" 13th, " " 104.

This trial satisfied me that the antipyrin would not control her temperature, so at 12 P. M. of the 13th I resumed the quinine treatment, 15 grains every three hours. She had suffered very little with her arm during the whole time she was taking the antipyrin, but

after that was stopped she began to suffer an intense burning, throbbing pain, with a sensation of something sticking.

On the 13th at 4 P. M. I lanced the abscess and a small quantity of thin white pus escaped. That night her arm was so painful that I gave her ½ grain morphine without her feeling the effect of the drug or any mitigation of the pain. After two hours waiting I resorted to irrigation with very hot water, which relieved during the application, but not a moment later. It had not for a moment occurred to me that antipyrin could relieve the pain of an abscess, and in sheer despair I gave her a 10 grain dose. She went to sleep in thirty minutes. After that it never failed to relieve the pain and stop her cough promptly. I have since found it to relieve the pain of a felon with the same promptness. The abscess discharged an immense quantity of matter and finally healed without doing any permanent danger. During the first week of March I made two applications of very hot water to spine, but it was done each time when her temperature was down to 94°, and it made her very weak and sick at the stomach. She was very much opposed to the remedy, and I did not insist upon it any more until the third week, when I made the application daily for eight days. The quinine treatment had been carried on about the same way, and she was better and worse just as the quinine was increased or diminished. My notes state the last dose was taken at 6 P. M. on the 21st. Nothing but bromide since, 40 grains every four or five hours. On 22d, at 10 P. M., suddenly waked up with difficulty of breathing and cold all over, but no fluctuation of temperature; on 23d, at 10 P. M., similar paroxysm but not so bad. Considerable spasmodic action about hands, arms and chest muscles. Commenced with mild tonic and whiskey—(elix. iron, quin. and strych.) Appetite better on Saturday. Sunday, 25th, slept cold the night before; 10 A. M., temperature 102. Ate no breakfast; evening temperature 103. Commenced quinia preparations again. Aching all over like old-fashioned intermittent fever. On 26th slept well all night, feels better and wants to sit up to write letters. Dr. Kirby, of Goldsborough, came to see her and saw her temperature go up to 108 at 6 P. M. After getting particulars of case and treatment, he advised me to give 30 grain doses of quinine night and morning. She was so bitterly opposed to any increase of the quinine that I deferred to her whim until Sunday, April 15th, when she affirmed that the quinine was killing

her, and that if I would stop the medicine and let her sit up, she would be well very soon. I knew she had the cart before the horse, but I thought I might convince her without running too great a risk, and accordingly stopped all medication and let her do as she pleased. Three days satisfied her, and she has raised no objection since. Wednesday, 18th, temperature 106 for three-quarters of an hour, with severe pains in knees and eyes. At midnight commenced with 20 grs. every eight hours. On 21st temperature 107½ in evening; 22d 103 in evening; 23d 25 grains every eight hours; very hoarse 20th and 21st; ate nothing but apples and bananas the three days she was sitting up and taking no quinine. Wednesday, 25th, 30 grains every eight hours with 10 grains antipyrin; had to stop bromide on account of acne. No more temperature above 100, and that only every two or three days. I wrote a second time to Dr. Hammond, giving him a detailed account of the case and enclosing her's and Dr. Styll's letters. An extract from his letter, dated March 28th, says: "I think you have acted with great discretion throughout the whole of your trouble. * * * I enclose you the letters. They are sufficient to vindicate you completely." Mentioning Dr. Styll, he said: "I should judge him to be a very intelligent man."

This compliment to Dr. Styll is nothing more than he deserves, and I desire here to pay my respects to him as a physician, a gentleman and a Christian. I deem it important in the discussion of this most remarkable case to quote his last letter in full:

Hollins, Va., April 3, 1888.

Dr. N. B. Herring:

Dear Doctor:—Yours of March 31st is to hand. I have felt great interest in the case of your daughter, and must confess to quite a disappointment in not hearing anything as to the progress of the case since she left this Institution, but I have attributed your not letting me hear from you to your necessarily anxious condition of mind and to your being too busily engaged to write. I am glad you wrote to Dr. Hammond, and would like very much to see his letters to learn his reasons for thinking the seat of the disease is to be found in the sympathetic nervous system. With the patient before me, and observing all the phenomena in the case, I am somewhat disposed to disagree with him in locating the lesion. I rather think the disease is to be found in the cerebro-spinal system. I will as briefly as possible state

my reasons for differing from the conclusions of so eminent a neuropathologist as Dr. Hammond. It is a well-known fact that the spmpathetic system of nerves presides over secretion as well as the circulation. Therefore I think that an alternate spasm and paralysis of these nerves, so extensive as to produce a fluctuation of temperature ranging from 95° to 115°, would most certainly produce some derangement of the secretions probably of equal fluctuation as temperature. This we know was not the case with our patient. In this case if there was paralysis and spasm of the sympathetic system of nerves it was general, and the whole sympathetic system was under some powerful influence, but I believe the influence was outside of the sympathetic system, and was exerted upon, and not by by, it. It is a well-known fact that if the sympathetic nerves supplying any part of the body are severed the temperature of that part will rise several degrees; but that rise of temperature will be because of a dilatation of the capillaries of the part and the consequent increased flow of blood in the part; and it will certainly be attended by an increased redness of the part. Now we know there was no such phenomenon as capillary congestion of the skin, nor anywhere else except in the conjunctivæ in this case. Unless the paralysis of sympathetic nerves was general, the rise of temperature could most certainly have been localized. In forming our opinion in regard to this point raised by Dr. Hammond we must bear in mind the fact that each ganglion of the sympathetic system is reinforced by filaments from the cerebro-spinal system of nerves, and that the influence that one of these great systems has on the other is but little understood. We know that in some instances it is decidedly antagonistic. To my mind the absence of capillary congestion alternating with anæmia of the skin, and the absence of secretory derangement throws a decided doubt upon the correctness of Dr. Hammond's conclusion. Is it not more reasonable to suppose the lesion to be in some heat-producing center near the vital centers, and that the sympathetic system receives its impression from thence, than to suppose the whole sympathetic system to be diseased at one time? This phenomenon of rise and fall of temperature was not the only phenomenon present. It seems to me that the effect on the heart, the nervous cough, the appearance of the eyes, the acute mania, the pain in the head and along the spine would at least cause a suspicion to be cast upon the cerebro-spinal system as the seat of the disease.

"I shall call your attention to the well-known fact that Entenberg and Landois have discovered in the anterior part of the cortex cerebri, a center, the destruction of which causes a rise of temperature of several degrees in the extremities of the side opposite the lesion. Dr. Isaac Ott in the December 10th, 1887, number of the *Medical News*, states that he has recently discovered in the cortex cerebri, at the junction of the super-sylvian and post sylvian fissures, a center which, when mechanically destroyed, causes a rise of temperature over the *whole body* of four or five degrees. He also states that the weight of the animal operated upon is but little affected. Now, if this be true (we have no cause to doubt it), and if we take into consideration the discoveries of Councilman, we have no further to go for an explanation of the phenomena we have witnessed in our case, for we have the heat-producing center, and we have in abundance an instant capable of exciting in the highest degree the peculiar function of this center. If Entenberg and Landois have discovered one heat-producing center in the brain, and Ott another, the number remaining undiscovered no man can tell. (See Councilman's paper in the *American Journal of the Medical Sciences*, April, 1885.)

"Now, if my theory as to pathological conditions in this case be correct, the rationale of treatment ought to be plain. The most important indications are to support life and to abort this abnormal substance, also to give tone to the weakened capillaries and general circulation. Besides the specific remedy for malaria, I would recommend ergot and the iodide of potash in large and frequent doses.

"Admitting Dr. Hammond's theory to be true, ergot, by its tonic effect on the capillaries, would be the most important remedy indicated. Its stimulant effect on the vaso-motor nerves explains the good effect of quinine in the case. * * * There never was but one point in your management of the case in which I differed with you, and that was in allowing her to leave her room, thereby taxing an already badly injured nervous system beyond its powers. I am still of the opinion that that was unwise. I hope you have kept notes of the case and will give the profession the benefit of this unusual experience by publishing its history.

"Yours, very truly,

"R. T. Styll."

In my extremity in the early part of March I consulted my friend Dr. O'Hagan, of Greenville, in about the same manner I did Dr. Hammond. An extract from his letter reads as follows: "The case of your daughter is certainly one of the most remarkable on record, at least with regard to the extraordinary height to which the temperature rose and the extraordinary fluctuations thereof. It is a case which will interest the whole profession, and ought to be reported in full, which I hope you will do. I know so little about the case that I am not warranted in expressing on opinion; but I cannot help thinking that the case is to be regarded as one of localized cerebral congestion in the basilar portion of the brain. Physiologists are disposed to localize all functional action in certain nervous ganglia in certain portions of the brain, and the heat-producing ganglia are located in the superior portion of the medulla oblongata. It is possible that some congestion of these parts might have much to do with the wild and erratic movements of the temperature. At any rate I would try blistering along the spine, and if that did not benefit her, I would try ice-bags to the spine. I think you have tried physic pretty fully, and that a rest from all drugs would be in order. * * * But the case must be near its termination. No organism, human or other, can stand such fluctuations in temperature. Write me again.

"C. J. O'Hagan."

My faith having returned before receiving this letter, I had sat down to a square hard pull with quinine, and I have been at it ever since. I have no confidence in anything else, not even as helpers. She has swallowed over 6,000 grains since the 14th of January, is now taking 30 grains at a dose every eight hours, is comfortable, looks well, eats well, and *I believe is getting well.*

MATERIA MEDICA IN 1887.

REPORT OF THE CHAIRMAN OF THE SECTION ON MATERIA MEDICA AND THERAPEUTICS.

By Joe Howell Way, M. D., Waynesville, N. C.

Read before the North Carolina Medical Society, at Fayetteville, May 8th, 1888.

Mr. President and Gentlemen of the North Carolina State Medical Society:

While on first view, it would seem that the increased interest with which the study and investigation of the intricate problems of pathology and bacteriology have been pursued during the past year, had so occupied the minds and energies of scientific investigators as to completely overshadow, and prevent any advance in our knowledge of drugs or the treatment of disease, such is not the case; for while much has been done along the lines indicated, still the attention of many has been directed to the study of new remedies and means of treatment. The year's work in the department of Materia Medica and Therapeutics has evolved no panacea for "all the ills that flesh is heir to," but it has not been barren of results in the direction of new remedies and new forms or improved methods of administration of remedies, and professional attention has also been prominently directed to the scientific and rational study of the important questions of diet and regimen, to the influence of mechanical and electrical treatment and of *massage* and to the effects, both beneficial and injurious of hypnotism.

The tendency to refined Pharmacy, elegance in the manner of prescribing, and the substitution of active principles for the crude drugs themselves, has continued to grow. In connection with the latter it is of interest to note that the artificial production of the vegetable alkaloids is becoming more and more practicable. The synthetical preparation of codeine, conia and pilocarpine is now an established fact of chemistry, and the physiological effects of these drugs when produced synthetically as well as those of synthetically prepared atropine, are said to be identical with those of the natural alkaloids. Efforts to destroy micro-organisms in the tissues of their victims have resulted much less favorably than was expected by the originators of this method of treatment. The labors of experimental therapeutists which have only of recent years been conducted on a scientific basis, in laying the foundation of a knowledge of the connection between chemical composition and physiological action, have not been productive of any very

decisive results during the past year, though they have served the useful purpose of directing the minds of physicians to greater precision in theraputics, and in suggesting new lines of inquiry from which we may ultimately profit.

I shall confine myself chiefly to topics that are of real practical value, and endeavor to present for your consideration an epitome of subjects of practical rather than purely technical interests; my object being to direct your attention, for the most part, to those drugs and methods of treatment which at least give some promise of being beyond the embryotic term of existence of many agents that when first proposed would seem to be all that could be desired, but which never have an existence amid therapeutic resources outside of the current literature of the day of their conception.

ABSORPTION THROUGH THE EPIDERMIS.

As bearing on the practical value of the constitutional impress of drugs when exhibited by local application to the integument, it is of interest to note the recent investigations of Drs. Ritter and Pfeiffer (*Berlin. Klinn. Woch.*, 1886), on this oft-disputed question, which recently acquired additional importance through the claims of Liebreich as regards lanoline. Their general conclusion, as a result of a series of carefully conducted experiments, was that the normal human epidermis does not absorb ointments and fluids, even when finely divided, but that, on the contrary, all substances which irritate the skin, and after a time tend to disturb its continuity, may finally be absorbed through the skin thus altered.

THE ANTIPYRETIC TREATMENT OF DISEASE

has lately been the subject of much concern on the part of the medical profession, but to the careful observer it is evident that we have passed through the period of greatest enthusiasm on this subject, and already observent clinicians have come seriously to consider whether the dangers necessarily incident to a state of hyperpyrexia have not been unduly exaggerated, and the question is being asked: may not the higher temperature in disease, and especially in infectious diseases, be conservative rather than destructive in its tendencies?

Dr. Loomis, in the anniversary address recently delivered before the New York State Medical Society, (*Phil. Med. News.*, 1888), in discussing this subject, well says that if we accept the almost universally entertained view that high temperatures induce destructive metamorphosis of tissue, then we are justified in resorting to the most powerful antipyretics to subdue the pyrexia. But, he says, there is no experimental or clinical evidence to be found that will sustain the doctrine of Liebermeister and other continental authors, that any such dangerously destructive changes take place in the blood and solid tissues during hyperpyrexia, or that the grave symptoms in fever which usually render a prognosis unfavorable are certainly referable to a

high temperature. In reality the evidences of the so-called parenchymatous degenerations and grave prognostic symptoms in acute infectious diseases are as well marked, and as often present, in cases where the thermometric range is at no time above 103°, as in those cases attended by hyperpyrexia. In a series of cases of typhoid fever in which the temperatures ranged low, at times being even subnormal, that had been recently observed by him, and in which the mortality was unusually high, he was surprised to find frequently occurring that class of symptoms we have heretofore regarded as being the direct results of high temperature; and from these and similar observations Dr. Loomis concluded that there is no necessary relationship between the other febrile symptoms and the temperature range. He believes the present heroic administration of antipyretics is attended with danger. In a case of fever or pneumonia where the temperature rises to 105° or 106°, and can be readily reduced by mild antipyretic measures, he would recommend the employment of such measures, but where powerful antipyretics are required, and the reduction in temperature is only temporary, he not only questions the beneficial effects of antipyretics, but believes that such reductions are obtained only by an expenditure of vital force on the part of a patient that largely diminishes his chances of ultimate recovery. That antipyretics exert any influence in shortening the duration or greatly modifying the severity of acute infectious diseases, he does not think anyone with much experience in their treatment will for a moment claim. From clinical experience he regards opium as being often one of our most efficient and reliable antipyretics, exerting its influence through its tranquilizing effects on the nervous system. Dr. Loomis closes his most interesting discussion of the subject with the following pertinent remark

If temperature reduction does not shorten the duration, mitigate the severity, or assert serious complications in disease, and if the ratio of mortality is not so diminished as to encourage us that we are making advances by antipyretic measures, *on what basis are we justified in their use?* Evidently only on the basis that by their use we relieve one of the many phenomena of fever If this can be accomplished without serious loss of vitality, or at the expense of the reserve force of the patient, we are justified in their use ; but do not let us imagine that by reducing temperature we are controlling fever.

Flint, in the addresses on "Fever, its causes, mechanism, and rational treatment," before the recent session of the International Medical Congress, (*Med. News*, 1887,) says that while it is not possible to exactly limit different measures of treatment to particular phenomena, there are certain therapeutical indications specially called for in the treatment of fever which relate to different systems and organs of the body. These indications he considers to be: (1.) Reduction of the general temperature by the external application of cold. (2.) Reduc-

tion of temperature by the internal administration of antipyretics. (3.) Promotion of general nutrition by alimentation. (4.) Measures to supply to the system matters that can be consumed in the excessive production of heat, thereby retarding destruction of tissue. The first of these measures is met by methods too well-known to require mention here, cold baths, spongings, &c. The second, by the use of antipyretics—of which he specially mentions antipyrin and antifebrin. Referring to the third and fourth measures, he considers them as subjects too little regarded by most of the profession, and while admitting the difficulty of digestion and assimilation in febrile conditions, believes that aliments containing a high heat-value as the hydrocarbons and fats in which the process of digestion have begun or are partly accomplished, can be, and should be, administered to retard and repair the destruction and degeneration of the vital tissues. Basing his claim on practical or clinical observations, as well as on theoretical calculations, he regards the administration of alcohol as the means *par excellence* by which these two indications are to be met.

Dujardin Beaumetz, (*Bull. Gen. de Therapeut.*, 1887,) considering the question of diet in febrile maladies, regards the digestive tract as not being capable of absorbing albuminous or fatty matters, hence he would limit alimentation in this condition to the administration of saline and aqueous matters. Milk and animal broths are useful only in so far as they furnish these principles. Alcohol, he believes to be a food, a tonic, and an antithermic—an aliment because it undergoes in the organism a more or less complete oxidation ; an antipyretic because the combustion of the alcohol takes place at the expense of the oxygen of the blood, and thus lessens the production of heat; and a tonic because it furnishes the nervous system with the elements of force and power.

ACETANILIDE (ANTIFEBRIN).

Though but little more than a year has passed since Cahn and Hepp (*Berlin. Klinn. Wach.*, 1887,) first called the attention of the profession to the therapeutic value of this drug its use has become most widely extended, and its physiological action has been the subject of much inquiry.

Weill (*Bull. Gen. de Therap.*, 1887,) concludes from his study of its actions that it acts specially on the nervous system, and after a period of excitation is followed by depression ; it induces general anaesthesia and analgesia ; by contracting the peripheral arterioles it causes an increase in the intravascular blood-pressure ; it lowers the central and peripheral temperature, and administered in toxic quantities it seriously impairs the composition and vital functions of the blood by converting haemoglobin into metahæmoglobin. From these considerations he bases its therapeutical application as follows :

It is an active febrifuge, and is of the highest value in the management of all most all diseases in which hyperpyrexia is the one symptom to be alleviated. In reflex neuroses it acts efficiently—as in epilepsy. It does not increase but rather diminishes the flow of urine. Habit is set up by its continuous use, and larger doses are required.

Dujardin Beaumetz, (*Bull. Gen. de Therapeutique*, 1887,) continuing the observations of Weill, has made a clinical investigation of acetanilide from which he deduces the following: As a febrifuge it is not a valuable acquisition to our list of antipyretics, being, in this respect, much inferior to antipyrin, but in nervous diseases he commends its use. He also observed that when given in the apyretic stage of fever, it was devoid of influence on the temperature, but even in moderate doses in the febrile exacebation it produced a marked impression, lowering the temperature several degrees. He has employed it for relief in these conditions, namely: In epilepsy, for the relief of pain in general and for the pains of locomotor ataxia. Compared with aconite in facial neuralgia he finds it inferior, but where structural changes are taking place in the nerves as in neuritis of the optic, acetanilide is superior to all other remedies. In muscular rheumatism and neuralgia, and in arthritic neuralgia he has found it superior to the salicylates. It is specially useful in the pains of tabes. In many cases long continued usage destroys its powers of relief. In epilepsy it is a remedy of much value, some remarkable results having been obtained from it in his hands as well as in those of Grosset of Montpelier, Bartholow of Philadelphia and others. Prof. Bartholow (*Int. Jour. Med. Science*, 1887,) regards it as a most valuable addition to our means of treating epilepsy.

Eisenhast, (*Centrabl. fur die gesamete Therap.*, 1887,) from his studies of acetanilide in Van Ziemssen's Clinic, reports on thirty cases of disease, including typhoid, acute rheumatism and other fevers, in which acetanilid was given in doses of from four to eight grains. In his cases the effects were manifested in about two hours, the fall in temperature amounting to from 1° to 4°, and the maximum impression occurring in from three to four hours. The duration of its antipyretic action ranged from four to fourteen hours. It induces like antipyrin a marked degree of diaphoresis in many cases. The normal body heat was not influenced to any material degree; hence, in common with other observers he advises its use at the time of greatest pyrexia. The drug is readily taken and well-borne by the stomach. Compared with antipyrin and the salicylates in acute rheumatism, he finds it inferior, but he regards it as being a valuable antipyretic for general purposes, and especially so in typhoid fever, the course of which, he thinks is rendered milder and its duration shorter by its administration.

Profs. Lepine and Charcot, (*Centrabl. fur die gesamete Therap.*, 1887,) have made acetanilide the subject of clinical investigation and noting its marked influence in diminishing reflex spinal irritability, used it in cases of epilepsy with considerable success. Administered for the relief of the pains of locomotor ataxia, and for the trembling of scleroses, it was found to relieve many, and to remove the symptoms entirely in a few.

Grueneberg, (*Berlin. Klin Woch*, 1887,) finds acetanilide a very effective agent in typhoid fever where a considerable reduction of temperature is to be made. He administered it in doses of 8 grains, three to four times per day, which promptly lowered the temperature, and without any unpleasant effects, save in a few cases where chills and profuse sweating were induced.

Cauldwell, (*Medical Record*, 1887,) investigating the influence of acetanilide on the hectic fever of phthisis, arrives at the following conclusions:

1. Acetanilide is the best drug with which to control the chills and fever of phthisis.

2. It does not produce the unpleasant effects of quinine, antipyrin, resorcin, salicylic acid or thallin.

3. Chills, collapse or semi-intoxication are not caused by it.

4. In many cases it induces sweating.

5. It diminishes the frequency of the pulse and usually strengthens the heart's action.

6. Occasionaly it produces cyanosis—this occurred twice in thirty cases.

7. It does not interfere with digestion, but, on the contrary, increases the appetite.

8. Even when the stomach is in an irritable condition the drug is most often retained.

9. In the majority of instances the secretion of urine is increased.

10. It tends to quiet the nervous system and induce a feeling of "well being" in the patient.

Dr. Cauldwell makes a useful suggestion in advising that acetanilide be given in combination with some stimulant, as aromatic spirits of ammonia, when used in phthisis, in order to prevent any temporary depression. His dose ranged from twenty to thirty grains per diem. My observation leads me to think one-half this quantity is enough to restrain the rise of temperature.

Drs. Shattuck, Wilson, Lyman and others, (*Association of American Physicians*, 1887,) offer additional testimony as to the great value of acetanilide as an antipyretic; the whole tone of the discussion on the use of the drug by the association being decidedly in favor of its employment in preference to any other agent of its classs

Hare (*Ther. Gazette*, 1887,) as a result of his researches in reference to acetanilide arrives at the following conclusions:

1. Acetanilide effects marked reduction in bodily temperature.

2. During the depressing action of acetanilide on normal temperature it seems to cause a slight fall in arterial pressure, although this is by no means a constant result, as it may cause a rise.

3. Notwithstanding the fact that acetanilide influences to so marked a degree normal bodily temperature, it seems to possess little power against the pyrexia produced by the introduction of pepsin into the blood, since under these circumstances, the hitherto depressed pressure rises, as does also the bodily heat. This curious fact must depend on some organic change produced by the digestive ferment.

4. Acetanilide reduces normal temperature apparently by influencing both heat production and heat dissipation.

5. Acetanilide in fever chiefly reduces the high temperature by decreasing heat production, and is, therefore, a valuable antipyretic.

Osler, (*Ther. Gazette*, 1887,) concludes from a clinical study of acetanilide that in doses of from 6 to 12 grains the drug reduces temperature from 2° to 4° in from two to five hours. The pulse-rate is slowed while the arterial tension is increased. Profuse sweating almost invariably attends its use in these doses. The urine is increased in amount. The effect on the nervous system is quieting.

Dr. J. Solis Cohen,, (*Phil. Med. News*, 1887,) expresses the opinion that acetanilide is much more apt to produce collapse in typhoid fever than antipyrin. In doses of 7½ grains in his hands, it lowered the afternoon hyperpyrexia of 105° to 96.5°, the temperature returning to 102° by early morning.

Dr. J. Howell Way, (*Phil. Med. News*, 1888,) in thirteen cases of typhoid fever treated by acetanilide found that doses of from one to three grains, repeated once or twice during the afternoon and evening when necessary, were amply sufficient to effect a reasonable reduction of temperature, and finding no evidences of cardiac failure or collapse in any of his cases, suggested that most, if not all of the recently reported cases of collapse or cardiac failure from the use of acetanilide were due to the administration of the toxic and not the medicinal dose of the drug.

Seifest, (*Weiner Med. Woch.*, 1876,) influenced by the observations of Dujardin Beaumetz has essayed the use of acetanilide in various painful maladies and finds it a remedy of much excellence in the treatment of migraine, hemicrania, general headache with an anaemic basis, trigeminal neuralgia, &c. These observations have been confirmed by many observers, and there can be but little doubt that in acetanilide, as well as in antipyrin, we have a nervine that will, to a great extent, substitute morphine in the palliation of pain. As an

antithermic it will doubtless continue to be much used, notwithstanding Dujardin Beaumetz, (*Ther. Gazette*, 1887,) states his belief that the use of acetanilide as an antipyretic should be discarded, though as a nervine he regards it as a most valuable acquisition to our therapeutical resources.

ANTIPYRIN.

This drug, though likely to be superseded to a great extent, as an antipyretic by its more recently introduced congener, acetanilide will, in all probability maintain a high rank as an hypnotic and anodyne.

Germain See, (*Rev. de Therap.*, 1887,) believes antipyrin is of much less value as an antipyretic than as an anodyne. He has found it valuable in allaying the pain in cases of chronic rheumatism, gout, and arthritis without fever, in which the use of the salicylates had failed to give relief. In the treatment of purely nervous pain its utility was most strikingly exemplified. Chronic and intractable cases of facial neuralgia were cured by it; as also cases of long-standing migraine. The administration of antipyrin in herpes zoster, sciatica, lumbago, locomotor ataxia, aortic anenrism and aortic regurgitation afforded great relief. The symptom of pain being the only thing possessed in common by these diseases, this author concludes that as an anodyne antipyrin should take high rank. He prefers to administer it in doses of 15 grains, repeated every hour or two. Nausea, vomiting and vertigo occasionally occur, in which case the dose should be lessened. An urticarial rash was sometimes observed. He also commends the use of it in cases of epilepsy, and especially in those cases where it is desirable to suspend the use of the bromides. Prof. See regards antipyrin administered subcutaneously as a most valuable substitute for morphine hypodermatically. One disadvantage about this method is as Dr. Hays (*N. Y. Med. Rec.*, 1887,) has observed, is the liability of the drug to induce the formation of an abscess.

In a more recent communication Prof. See, (*La France Medicale*, 1887,) offers additional testimony to the value of antipyrin hypodermatically as a substitute for morphine, his conclusions from a more extended use of the drug being that there is not a disease or a symptom where antipyrin can not replace morphine for the relief of pain by disease.

Dr. Suckling, (*Brit. Med. Journal*, 1887,) corroborates the observations of Prof. See relative to the marked alleviation of the pains of locomotor ataxia by antipyrin.

Nunger, (*Centrabl. C. dieges. Ther.*, 1887,) found that antipyrin in doses of from 15 to 20 grains frequently cut short an attack of hemicrania. Sometimes when administered on the outset of premontary symptoms it aborted the attack.

Dr. Jno. Ogilvy, (*Brit. Med. Jour.*, 1887,) himself a sufferer from "bilious headache (hemicrania) found more relief from antipyrin than from tea, caffeine, bromides and the other remedies used in this condition. He advises that 8 grains be taken when the premonitory symptoms come on, the patient lying down in a quiet and darkened room. At the end of an hour another dose of 8 grains is given, and sometimes a third dose may be required, but not unusually; sleep or a pleasant languor follows the first or second dose, accompanied by gradual relief from the headache. No unpleasant after-effects are observed, and the appetite returns at once.

Robinson, (*N. Y. Med. Rec.*, 1887,) from the use of antipyrin in more than eighty cases of migraine, concludes that it is our most valuable agent in this condition, for not only was the relief manifested more quickly, but there was an absence of the unpleasant sequelæ necessarily attendant on the use of other sedatives. Another advantage is the absence of any danger of the formation of the morphia habit, so easily acquired where this class of patients are allowed to resort to opiates for relief.

Dr. Robinson recommends that patients subject to migraine keep 22 grain powders of antipyrin on hand, and take one in a little Vichy water on the appearance of premonitory symptoms, and repeat the dose in two hours if neeessary.

Dr. Hamilton, (*N. Y. Med. Jour.*, 1887,) corroborates the testimony of Dr. Robinson as to the value of antipyrin in migraine and reports his experience with the drug in epilepsy, in which disease it was of value, especially in cases where no appreciable organic cause for the disease existed.

Dr. Wm. A. Hammond, (*N. Y. Med. Rec.*, 1887,) has used both antipyrin and antifebrin for the diseases of the nervous system for which they are commonly recommended, epilepsy, hemicrania, etc., but with only negative results.

Dr. Cheatham, (*N. Y. Med. Rec.*, 1887,) has had excellent results accruing from the internal use of antipyrin in hay fever.

Dr. Francis Minot, (*N. Y. Med. Rec.*, 1887,) at the recent session of the Association of American Physicians read a paper on the treatment of typhoid fever by antipyrin and thallin, in which he reaches these conclusions:

1. Both drugs have a remarkable power of reducing pyrexia in typhoid fever.

2. In no case was the use of these refrigerants apparently followed by any unfavorable influence on the course of the disease.

3. The general condition of the patients was more comfortable after taking antipyrin and thallin, which were often followed by sleep.

4. The refrigerant medication by antipyrin and thallin appears to have no specific or decided effect on the course or issue of typhoid fever. It often contributes much to the patients comfort; perhaps indirectly promotes his safety

5. The effects of antipyrin and thallin in promptly lowering the temperature shows that the danger in typhoid fever does not consist in high temperature alone, and that the latter is rather an index of the violence of the abnormal condition which we call fever, though perhaps adding somewhat to the danger of the case.

6. By the internal use of antipyrin and thallin all the effects which are claimed for the treatment of typhoid fever by the cold bath are readily obtained without the inconvenience of the latter method and without exposing the patient to the dangers of exhaustion and shock consequent on the fatigue of removal from bed.

7. These remedies may be given without danger to the youngest patients in the smallest doses, and, indeed, their beneficial effects are more decided, and the unfavorable consequences less observable than with adults. In the discussion following the reading of this paper Drs. Wood, Atkinson and others disagreed with its author in the statement that the use of these drugs can take the place of the external application of cold water; Dr. Wood expressing the opinion that the cold water exerted a most beneficial influence in some, and as yet unknown way, on the nervous system through its effects on the peripheric distribution of the nerves. A most rational view of the subject, I think, and one in which most physicians will concur.

Fraenkel, (*Deutsch, Med. Woch.*, 1887,) from the use of antipyrin in more than thirty cases of acute rheumatism came to the following conclusions relative to its value:

1. That antipyrin is a useful addition to our means of treatment of acute rheumatism.

2. That it may be recommended as an initial treatment in acute rheumatism.

3. That it does not prevent relapses, and is not an absolute substitute for salicylic acid and its salts. Fraenkel gives the drug in peppermint water, in three hourly doses, amounting to 75 grains per day as a maximum dose, diminished as the severity of the disease decreases. He had noticed unpleasant symptoms occasionally.

Clement, (*Lyon Med.*, 1886,) has substituted antipyrin for the salicylates in all cases of acute and subacute rheumatism with good effects. He especially notes that where any complications existed, the antipyrin gave rise to no unpleasant symptoms, and no cardiac weakness was observed. In chronic and in gonorhoeal rheumatism no effects followed the use of the drug, though two cases of gouty arthritis did well under this treatment.

Davis, *Jour. Am. Med. Asso.*, 1887,) after using antipyrin in about twenty cases of acute rheumatism states that it is of most avail in acute cases, or in chronic cases where there is an acute exacerbation, chronic cases without fever remaining uninfluenced by its use. Antipyrin he regards as having an advantage over the salicylates in being less liable to induce nausea, headache, tinnitus aurium, and may be of special value where a patient cannot take the salicylates. It may be given efficiently by either the rectum or subcutaneously. The only ill effect noted was the frequent occurrence of the antipyrin rash, for Dr. Davis considers that the collapse occasionally appearing may have been due to other causes. He attributes its power in allaying the pain of rheumatic fever to a direct action on the nervous tissues.

Bernheim, (*London Med. Rec.*, 1887,) used it in thirty-four cases of rheumatic troubles with the result of promptly reducing the temperature and alleviating the pain, though the resolution of local lesions was not apparantly hastened. On the whole it would seem that antipyrin can not be credited with any specific action in rheumatism, for it in no way prevents the visceral lesions except in so far as the risk of complications is avoided by the duration of the disease being shortened, It is probably simply a powerful muscular analgesic acting through the nervous system. With reference to the

DANGERS OF ANTIPYRIN

it is well to note that experimental investigators have determined that antipyrin, as well as antifebrin, in very large doses, instead of stimulating the inhibitory heat centre, and thereby decreasing heat production, paralyzes it, in that way giving rise to an enormous over production of heat, and consequently great rise in temperature, so that it is possible in some of the cases reported where the temperature rose rather than fell the dose was too large. On the other hand it is easy to see how in persons susceptible by idiosyncrasy or otherwise, the inhibitory heat-centre may be so stimulated by a small dose that the production of heat falls below the dissipation, with a consequent lowering of temperature and a neccessary collapse. Hence it is always advisable to administer antipyrin, as well as antifebrin, in small doses at first in order to avoid possible dangers from idiosyncrasy and overaction of the drug. The dose of antipyrin for adults should probably range from 2 to 10 grains; that of acetanilide from 1 to 5.

By the use of the drugs in these doses we will, I think, derive all possible therapeutic advantage, and avoid all risks of untoward results which have been reported so frequently of late.

ACETPHENETIDINE.

This new candidate for therapeutic favor as an antipyretic has not as yet been used to any very great extent. It is a faintly-reddish powder, odorless and tasteless, and is analogous in chemical compositions to acetanilide.

Kobler, (*Wiener Med. Wach.*, 1887,) as a result of his studies of its action administered in fifty cases of disease, including phthisise pneumonia, typhoid fever, etc., draws the following deductions:

1. Acetphenetidine is an efficient antipyretic.
2. It produces no ill or unpleasant after effects.
3. The dosage is by quantities of 1½ grains.
4. The administration of a considerable dose (8 to 10 grains) is more useful than the repetition of small doses hourly or every two hours.

Additional testimony on this drug at present is wanting, and more extended observations are necessary in order to determine its true worth as a remedial agent.

HYDRATE OF TERPINE AND TEREBENE.

Additional clinical evidence has been adduced during the past year to show that in these two derivatives of oleum terebinthinæ we have two valuable additions to the class of expectorants. In subacute and chronic bronchitis, in phthisis and in asthma the results following their use have been encouraging.

COCAINE.

This drug maintains its position as a most valauble local anaesthetic in the performance of all surgical operations where it can be brought into contact directly, or by absorption, with the tissues implicated in the operation.

Masso, (*Arch. f. Path. u. Phar.*) from his experimental investigations reaches the conclusions that cocaine is the best nervous stimulant known, and he anticipates that it will be found of signal use wherever we desire to counteract a condition of deep depression and to produce an energetic stimulation of the nervous system. According to the same observer, cocaine possesses the power of elevating the bodily temperature—elevations of as much as 4°C. within half an hour being reported. It is also physiologically antagonistic to chloral, chloroform and either; and in case of dangerous toxic effects from cocaine. Masso recommends the administration of chloroform or ether in the first instance in order to prevent the respiratory tetanus, which is said to be the most frequent cause of death.

DaCosta, (*Phil Med Times*, 1887,) states his belief, founded on clinical observations, that in cocaine we have a valuable heart tonic for sustaining the circulation in low forms of fever, especially where there is cerebral disturbance added. In this class of cases he gave ¼ grain doses every two to four hours with the best results.

But while cocaine is without doubt a useful addition to our therapeutic *armamentaria*, its incautious administration may be attended with certain dangers which probably are not so widely known or appreciated as they should be; though it may be well to note that in this connection that Dr. Wm. A. Hammond stated before the New

York Neurological Society (*Phil. Med. News*, 1886,) his disbelief in the toxic power of cocaine, declaring that he "did not believe any dose that could be taken was dangerous."

Dr. Mattison, of Brooklyn, who has specially investigated this subject read a paper before the Kings County Medical Society (*N. C. Med. Jour.*, 1887,) in which more than fifty cases (four of them fatal) were cited to prove the assertion that there is a danger, near and remote, in the use of this drug on some patients, that does not warrant such reckless disregard of care as the opinion of Dr. Hammond would imply. The amount of the drug given in these cases varied from a small fraction of a grain to twenty-four grains, and was applied in various cases to the eye, nose, ear, throat, larynx, teeth, gums, stomach, bowels, bladder, uterus, urethra and subcutaneously. The cases were noted in detail, and presented quite a remarkable variety of symptoms, ranging from slight systemic depression to temporary blindness, or even syncope and fatal collapse. Summarizing it was asserted that:

"Cocaine may be toxic, sometimes deadly so, in large doses."

"It may give rise to dangerous or even fatal symptoms in doses usually deemed safe.

"The dangers, near and remote, are greatest where it is administered subcutaneously."

Since the publication of this paper Dr. Mattison, pursuing his investigations, has collected upwards of forty additional cases of toxic, results induced by cocaine, two of which proved fatal. From a review of these cases (*Ther. Gazette*, 1888,) he concludes:

"There is a lethal dose of cocaine."

"This dose is uncertain."

"Toxic effects are not rare."

"They may be the sequelæ of doses, large or small, in patients old or young, the feeble or the strong."

"This risk should induce caution,"

"Antidotes should be at hand."

"These are nitrite of amyl and morphine hypodermatically."

In this connection it may be well to note that there are now on record a number of authentic cases where the medicinal administration of cocaine for some time has resulted in the formation of the cocaine-habit—a vice fully as dangerous and appalling as the morphine-habit—and to emphasize the importance of prudence on the part of physicians in prescribing it for patients suffering with chronic maladies.

DRUMINE.

This agent, proposed in 1886 as a local anaesthetic by Dr. Reid of Australia, (*Australia Med. Gazette*, 1886,) has been carefully investigated by Dr. Ogston, who fails to confirm in any degree the statements of Dr. Reid with reference to its anaesthetic results.

GLEDITSCHINE.

This name was given to a new alkaloid said to be derived from the leaves of the *Gleditschia triacantheos* or common honey locust. Drs. Claiborne and Knapp experimenting with it found it to be a local anaesthetic and mydriatic of great power, (*Med. Record*, 1887.) An active demand for the supposed alkaloid was set up, and numerous papers extolling the new drug appeared in the columns of the medical press; but the enthusiasm was short-lived, for in a few weeks Drs. Nary, (*Pharm. Rund.*, 1887,) and Marshall (*Phil. Med. News*,) showed the two per cent. solution of gleditschine or stenocarpine, as it was also called, was in reality a solution of about six per cent. of muriate of cocaine with five-sixths of one per cent. of sulphate of atrophia, the solution having been protected by salicylic acid.

SACCHARIN.

This new derivative from coal-tar recently introduced by Dr. Fahlberg, occurs as a very pale yellowish powder with a slightly aromatic odor and an intensely sweet taste, its latter property being quite distinct when diluted to 1 in 10,000. Competent observers have claimed for it antiseptic properties equal to thymol and salicylic acid.

It has no influence on digestion, and is rapidly absorbed from the stomach and eliminated unchanged by the kidneys. Possessing as it does sweetening properties three hundred times stronger than glucose, and being free from the injurious results which in certain conditions result from the decomposition of carbohydrates in the system, it bids fair to prove in the future a most valuable agent for rendering palatable the food of diabetics. The practical value of its antipyretic properties remains to be fully investigated.

METHYLAL.

This new alcoholic derivative has been recently made the subject of careful study by Personali, (*Nouv. Rem.*, 1886,) *Motrochin*, (*Bull. Gen. de Therap.*, 1887,) Richardson, (*Lancet*, 1887,) and others. The more recent contribution to the subject comes from Dr. Richardson, who thus summarizes our present knowledge of the drug:

1. Methylal is hypnotic and antispasmodic.
2. Its action lies between ethylic alcohol and ethylic ether. It may be looked on as a volatile alcohol, and resembles closely pure methylic alcohol in action.
3. It can be administered by inhalation as vapor, by hypodermatic injection, and by the mouth in aqueous solution.
4. It reduces arterial tension, and by local action excited glandular activity.
5. The sleep it induces is not profound unless the dose be excessive. It is quickly eliminated, and leaves no serious effects. It causes no vomiting or gastric distress.

6. A fatal dose by inhalation kills by complete relaxation of the muscular fibres of the heart, leaving the heart distended with blood and the vascular organs intensely congested.

7. It combines with ether, alcohol, amyl nitrite, and many other remedial agents with which it acts in concert, while it equalizes their action by reason of its own solubility.

8. Its tendency is to maintain the fluidity of the blood, and it may, therefore, be of service in combination with ammonia.

9. It promises to yield a safe and effective anaesthetic mixture in combination with ether.

10 It reduces the animal temperature, but to the same degree as common alcohol.

11. Used as an anodyne it passes out of the body without producing organic injury when not often repeated.

12. But like all other agents of its class, it must be given in increasing quantities in order to keep up its effects, and it would soon yield evil as well as good results by its habitual use in the community at large.

PARALDEHYD.

Like most new drugs paraldehyd has not sustained the claims that were put forward by its early advocates as to its action and therapeutic value. The claim that it had no preliminary stage of excitement has been suceessfully questioned; though when full doses are administered this stage is so slight and short as to really be no practical disadvantage. The statement that it was safer than chloral on account of exerting no depressing influence on the heart, seems to be borne out by experience, but it is sometimes followed by unpleasant after effects. The dose of one to two fluiddrachms requires about twelve times this amount of water to render it soluble, and it is preferably given in this way. While it is disagreeable, and sometimes even difficult to administer, its availability in certain cases where chloral is contraindicated will doubtless give it a place in our therapeutic resources as an occasional hypnotic.

HYPNOTISM.

The study of hypnotism and its possibilities as a therapeutic agent has received no inconsiderable degree of attention during the past year, especially in France, where even surgical operations of a capital nature are reported to have been performed painlessly while the patient was in the hypnotic state. As a psychological phenomena the study of this subject is most fascinating, but to the student of practical therapeutics it is not at all probable that hypnotism will ever yield anything of real value in the treatment of disease.

SALOL (PHENOL-SALICYLATE.)

This new emanation from the apparently inexhaustible resources of the coal-tar group differs from most of the members of its class in that it is composed of two derivatives of coal-tar, namely, carbolic and salicylic acids.

Dr. Lombard, (*London Med. Rec.*, 1887,) from his study of the effects of salol believes it is an antipyretic though very limited in its power. At first it increases the number, but diminishes the depth of the respirations, but they soon become normal again. Its action on the circulation is almost practically nil. It has no toxic effects. It is unirritating to the stomach, and passes through it unchanged to the small intestine where, under the influence of the alkaline secretions there met with it, is decomposed into carbolic and salicylic acids, appearing in the urine very soon as salicyluric and phenol-sulphuric acids. This author recommends its administration in doses of from 60 to 90 grains for adults, and it is best given in emulsion. From its use in sixty cases of acute rheumatism he states that it exercises a powerful cooling effect on the pain, but the extravagant claims of some observers were not borne out. Its effects, however, were prompt. Within two hours after its ingestion the pain subsides, but unless the patient be kept under its influence the symptoms recur in a few hours as violently as before. He regards the difference in the influence of salol and sodium salicylate in acute rheumatism as consisting in the more persistent relief afforded by the later, even after its use has been suspended. At the same time salol is exempt from most of the unpleasant consequences which sometimes follow the use of the salicylates, and for this reason the use of the former may be preferable in subsacute attacks of rheumatism and when the use of the salicylates is contraindicated.

Bielchouski, (*Ther. Monat*, 1887,) publishes the results of his use of salol in acute rheumatism—75 grains per day act promptly in arresting the disease, and when a relapse occurs, a single dose will usually prove immediately successful. In pyonephritis, cystitis, etc., it was found to be very active in checking suppuration, and preventing and removing the products of urine decomposition. He regards it almost a specific in acute rheumatism.

Rosenburg, (*Ibid.*,) has also employed it in this condition with complete success. Its advantages, he claims, are that it is easily administered, and in no wise disturbs the digestive organs, and its curative power is much greater than the salicylates, though there is no evidence to show that it succeeds better than other agents in preventing the occurrence of cardiac complications.

Georgi, (*Berlin Klin. Woch.*, 1887,) has administered salol in about forty cases of disease. He found it valuable as a local application in affections of the nasal, buccal, and pharyngeal mucous surfaces. Internally it was of value as an antipyretic in phthisis, enteric fever,

acute rheumatism and other febrile maladies. In phthisis doses of 7 grains were given at first, and then larger quantities until the desired results were produced. He found that 22 grains could be given for a dose, and 75 grains in nine hours, without inducing any ill results. In rheumatism it reduced the fever and relieved the pains without causing unpleasant after effects.

Seifert, (*Cnetrabl. f. Klin. Med.*, 1887,) confirms Georgi's favorable report of the use of salol. He also found it valuable in sciatica.

Aschenbach, (*Fortschritt der. Med.* 1887,) found prompt relief in his own case from salol when suffering from an obstinate sciatica which all other remedies had failed to relieve.

Klufield, (*Berlin Klin. Woch.*, 1887,) from the use of salol for several months, and in thirty-five cases of rheumatism and varying forms of neuralgia obtained the best results. There followed in his hands no unpleasant sequelæ save the occasional occurrence of *tinnitus aurium* which was not severe.

It is tasteless, odorless and is readily taken.

Large doses are not required, as good results are obtained from doses of 15 grains three times daily.

It bears very favorable comparison with antipyrin and sodium salicylate in the diseases mentioned.

Its price is low.

Perrier and Pateria, (*Revue de Chirurg.*, 1887,) have used salol as a substitute for iodoform as a surgical dressing, and are enthusiastic in their praises of its value.

Feilchenfeld, (*Centrabl. f. Klin. Med.*, 1887,) obtained good results from 30 to 45 grain doses of salol daily in cystitis and pyelitis, in acute cases, and also in hypertrophied prostate. Strangury followed the use of the drug in one case, and in the others no ill effects were noted from its use.

Neucki, (*Thérap. Manat.*, 1887,) from an exhaustive study of salol proves that myosin in the presence of an alkaline carbonate as readily decomposes salol as the alkaline secretions of the pancreas, liver and small intestine; hence he concludes that as an external antiseptic it will prove of great value owing to the two efficient antiseptics composing it.

Dr. Pritchard, (*N. C. Med. Jour.*, 1887,) recommends the use of salol in conjunction with enemata of ice-water, in the treatment of the summer diarrhoeal diseases of infancy, and certainly the results of his use of the drug in this class of cases would indicate it a remedy of no mean value.

Dr. Goelet, (*N. Y. Med. Jour.*, 1887,) adds corroboration to the above, and also extols the use of salol in diarrhoeal affections in general and especially in enteric fever.

Pfeifer, (*Centrabl. f. Klin. Med.*, 1887,) reports an extended use of salol in the treatment of typhus fever, pneumonia, pyaemia, ulcerative endocarditis and diphtheria, in which it proved itself to be a reliable antipyretic, although one of only medium intensity. Apyrexia was induced without any unpleasant symptoms, and the accompanying diaphoresis was moderate.

Collapse was not observed in a single case. The drug was given in doses of from 1½ to 2 drachms der day.

Frankel, (*Deutsch. Med. Woch.*, 1886,) has not found salol as effective as the salicylates in the treatment of acute rheumatism.

Herslick, (*Berlin. Klin. Woch.*, 1887,) observed that salol was much more potent than salicylic acid in relieving rheumatism, 2½ drachms of salol having more effect than the 1½ drachms of salicylic acid it contains. The question then arises whether the carbolic acid contained in the salol has any effect on the rheumatism. Sahli concludes that it has, and Herslick inclines to the same opinion ; but Kensze and Senator have shown that subcutaneous injections of carbolic acid are without influence upon the rheumatic process. The appearance of the urine, which rapidly becomes darkened in color even after the administration of small doses of salol, would seem to denote a carbolized state of the system, but Herslick found that despite the condition of the urine, symptoms of carbolic acid poisoning do not ensue from the use of salol. On the whole it may be said that the precise physiological effects of salol, and its therapeutic application have not as yet been fully worked out, and it yet remains for future investigators to demonstrate the real value of the drug.

PAPAIN

This vegetable digestive ferment derived from the unripe fruit of the *Carica papaya*, or Papaw, has again been brought into notice as a useful alternate or substitute for pepsin. Its fermentative action is active in neutral and alkaline conditions, while pepsin only acts in the presence of free acid. Without the presence of free acid papain is claimed to be equal in activity and power to pepsin in an acid solution. This being true, it follows that papain will be of value in conditions where pepsin is not, and in dyspeptic troubles where a digestive ferment is indicated and pepsin fails papain will become an additional resource for the practitioner.

URETHAN.

This new addition to the class of hypnotics, originally suggested by Schmeidel (*The Practitioner*, 1885,) has been the subject of careful physiological and therapeutical study during the year past. Numerous articles have appeared relative to this drug, and from a critical review of many of these it would seem that the true position of the drug is about as follows: It is a hypnotic pure and simple through its in-

fluence on the sensorium itself, and exercises a less degree of influence upon the general functions of the organism than any other known drug of its class. As a rule the sleep produced by it is most natural and refreshing, and is followed by no unpleasant after effects. It has little or no value as an anodyne or analgesic, hence its administration is useless where the insomnia is secondary, or the result of pain, or other serious peripheral disturbance. It is most useful in cases of simple primary insomnia acting here most beneficially and without inducing any subsequent headache, anorexia, or indigestion, such as follow the use of the more powerful hypnotics. While transient in its effects on the sensorium, a condition of tolerance is soon established and the dose is required to be greatly increased. This can be done without fear as it seems not to exert any toxic influences in doses as large as 186 grains. The proper dose *per orem* would seem to be from 15 to 30 grains, though some observers have reported excellent results from doses of half this amount. It is unirritating to the subcutaneous tissues as well as to the stomach, and may be given hypodermatically, though from the size of the dose it is not likely this method will be often pursued.

Prof. Aurep, (*Pharm. Past.*, 1887,) has experimentally proven the value of urethan as an antidote to toxic doses of strychian, picrotoxin and resorcin, and from the greatly less danger attending its use than that of chloral hydrate it seems to be preferable to the latter in such cases.

STROPHANTHUS.

Since the attention of the profession was first directed by Mr. Fraser to the physiological action and therapeutic uses of strophanthus, or the Kombe arrow poison of Africa, so much has been written upon the subject that probably no one now doubts its potency as a cardiac tonic, and its useful application to the treatment of both organic and functional diseases of the heart. While acting in some respects like digitalis, in others like convallaria, it is a duplicate of neither drug, and probably possesses some special physiological action that as yet has not been fully worked out. The dose of the tincture prepared from the seeds is stated to be 5 to 10 minims three to four times a day, though smaller doses more frequently repeated will likely give better results. Generally speaking, it is recommended in the various forms of disease in which we now use digitalis and convallaria; and though more extended use will probably not confirm the reports of extraordinary "cures" of cases of organic heart disease effected by strophanthus, it will likely cause the drug to take rank as a useful alternate from the use of the two former drugs.

SPARTEINE AND ADONIDINE.

These two new alkaloids have recently received a trial as cardiac tonics, and while acting efficiently in some cases, from their lack of

diuretic properties, it is not likely that either will take rank as a therapeutic agent, save as a cardiac tonic, that may be used when digitalis is from some cause contraindicated.

IODOL.

Dr. Wolfender, (*The Practitioner*, 1887,) of the London Throat Hospital, urges the claims of iodol as a substitute for iodoform; its merits being that it is odorless, or nearly so, tasteless, produces no constitutional effects, contains nearly as much iodine as iodoform and parts with it more readily. It is antiseptic, anaesthetic, a promotor of granulation and healing, and arrests suppuration and deodorizes foul secretions. In nasal, laryngeal and pharyngeal affections applied as a pure powder, it is of the utmost value. In laryngeal phthisis its use was attended with benefit.

Lublinski, (*Therap. Monatsh.*, 1887,) also extols the use of iodol in tubercular laryngitis.

Pick (*Ibid.*) has employed iodol in a large number of cases of catarrhal, suppurative, ulcerating and syphilitic affections with good results. It acts on the whole like iodoform, but does not form a crust on an ulcerated surface. Internally it may be usefully substituted for iodide of potassium when we desire a persistent but not very intense iodine action, as iodol is very slowly absorbed and excreted. Pick administers it in 4 to 8 grain doses, night and morning, for two days, then omitting its use for one or two days, resumes it again as before.

Seifert, (*Centrabl. f. Chirurg*, 1887,) from his experience with iodol confirms, in the main, the observations of Drs. Wolfenden and Pick.

Dr. Assaky of Romania in a paper read before the recent session of the International Medical Congress (*Med. Record*, 1887,) states that iodol retards suppuration, renders it inodorous, reduces the frequency of dressing and promotes cicatrization; wounds uniting under its influence by first intention. Iodol in amounts of from 15 to 30 grains daily, even when continued for a long time, did not induce any functional trouble. The doses gave most excellent results in strumous and syphilitic affections. Iodol is an antipyretic of some power, in acute infections disorders causing a rapid reduction in temperature.

IS IODOFORM AN ANTISEPTIC?

This question, recently raised as a result of the publication of some experimental investigations made by Drs. Heyn and Rasing, (*Fortschrift der Medicin*, 1887,) who found that the presence of iodoform did not prevent the development of micro-organisms in sterilized cultures, has been warmly discussed during the past few months.

Drs. Friedlander, (*Ibid.*) Poten, (*Ibid.*) Tilanus, (*Munchlin. Med. Woch.*, 1887,) Ruyter, (*Beilage Zum. Centrabl. f. Chirurg.*, 1887,) Konig, (*Ibid.*) Sattler (*Fortshrift der Med.*, 1887,) and Jeffries, (*Am. Jour. Med. Sci.*, 1888,) have all contributed to the discussion. It was

urged on the one hand, that iodoform was neither a germicide nor an antiseptic; it being shown that when iodoform was brought in contact with bacteria they were not destroyed, and that the presence of this drug in culture media, even to the extent of 50 per cent., failed to prevent the development of bacteria, or in any way interfere with the activity of germ-life. While these propositions were accepted, it was claimed, on the other hand, and proved that the conclusions derived from laboratory experiments did not hold good for iodoform when brought into contact with the body. In solutions and maintained at the temperature of the human body, iodoform proved a potent germicide. Bacteria that were growing on a laboratory mixture of iodoform were destroyed when the temperature was elevated to the body heat and a purulent fluid added. It would appear that under this influence, aided by moisture and heat, the micrococci of pus had the power of decomposing iodoform and liberating free iodine. The result of the discussion has demonstrated the value of the drug, and its germicidal power when used in connection with wounds or suppurating surfaces, and as such, in addition to its sedative and protective virtues, it will doubtless continue to enjoy the favor of most surgeons.

THE TOXIC EFFECTS OF IODOFORM

have recently been the subject of professional attention. Mr. Treves (*The Practitioner*, 1886,) notes the circumstances under which poisoning is most likely to occur. The susceptibility of individuals to the drug varies remarkably. Poisonous effects would seem to be more likely to occur at the extremes of life than in middle age. Toxic symptoms may appear very soon after the first use of the drug, or perhaps not for weeks. From recent wounds and from those suppurating or sloughing freely, absorption to a poisonous extent is not likely to occur. The conditions most favorable to the absorption of toxic amounts of iodoform seem to be as follows:

(1.) The wound is clear and granulating, and the powder is freely applied. (2.) The iodoform is introduced into an abcess cavity, or into a cavity, or fistula, or confined space. (3.) The powder is applied under pressure, or is surrounded by a more or less impermeable dressing. (4.) The drug comes in contact with a mucous surface.

The symptoms of poisoning are either acute or chronic in their course. In the one case the patient suffers from malaise, loss of strength, depression of spirits, slight fever, rapid pulse, the mental faculties becoming distorted, and finally, it may be after the lapse of weeks, the patient sinks into a condition of hebetude from which he never rallies. In the other form the symptoms come on rapidly, and are chiefly malaise, headache, high fever, with a pulse running to 150 or even to 180, active delirium, etc. The patient rapidly sinks and dies in a short time from exhaustion.

Dr. Cuttler, (*Boston Med. and Surg. Jour.*, 1887,) gives a *resume* of seventy-seven (77) cases of iodoform poisoning. The general symptoms were those of poisoning by iodine; persistent taste and smell of the drug, anorexia, impaired digestion, headache, insomnia, delirium, which is usually of a melancholy type, rapid, feeble pulse, and progressive marasmus. Several cases were noted where these symptoms developed though, to all appearance, the wound itself was progressing nicely. Dr. Cuttler advises that, (1,) only fresh wounds or unhealthy or tuberculous surfaces are suited for the application of iodoform; (2,) only a thin layer of the drug should be applied; (3,) when granulations appear healthy, iodoform should be omitted, and (4) at the first symptoms of poisoning, or even coincidently with the first use of iodoform, compounds of alkalies with organic acids, as potassium acetate, should be given by the mouth at frequent intervals. If severe symptoms supervene, transfusion with a solution of sodium chloride is recommended, and the wound, after being washed free from iodoform with pure water and a solution of an alkaline carbonate, should be dusted with magnesia.

Dr. R. W. Taylor, (*Medical News*, 1887,) read a paper before the American Dermatological Association on the toxic effects of iodoform, reporting in detail 24 cases, in 15 of which constitutional symptoms were manifest, while in 9 a localized dermatitis, appearing most often within the first day or two of the use of iodoform, was alone present.

BERGEON'S TREATMENT OF PHTHISIS.

But little more than a year and a half ago Bergeon, of Lyons, as a result, he claimed, of a few year's experience with the method proposed to treat cases of phthisis pulmonalis by rectal injections of sulphuretted hydrogen gas. The desire to find, if possible, some measure that would enable us to cope with this formidable disease, the positiveness of the results claimed for the Bergeon treatment by its projector, and the novelty of the measure suggested, all conspired to engender that epidemic of enthusiasm which swept the medical profession a few months since. Most extravagant claims were made for the treatment which was based on the theory that the H_2S was eliminated largely by the pulmonary parenchyma, and there exerted a germicidal influence on the tubercle bacilli. At the present time the use of the treatment has almost entirely ceased. The investigations of many careful observers seem to have established these facts with reference to the treatment: It has no influence over the local morbid processes in the pulmonary parenchyma, nor does it prevent further infiltration of the tissues by extension of the tubercular process.

Its effects on the *bacillus tuberculosis* are nil.

It does diminish the fever and sweats, moderates the cough, and increases the digestive power, but the method is disagreeable and incon-

venient in the extreme, and productive of no results not attainable by suitable hygienic arrangements; hence I am of the opinion that it will not be long ere the Bergeon treatment of Phthisis will only be remembered as an historic medical novelty.

AMYLENE HYDRATE.

This new hypnotic introduced only a few months since by Wm. Mehring, (*Thera. Monat*, 1887,) bids fair to prove the most valuable of the numerous recent additions to this class of remedies. It is given in doses of from 20 to 60 grains. It is unirritating to the stomach, and is absorbed into the circulation with a rapidity excelled by few drugs. It does not disturb the digestion or produce any unpleasant after effects. It produces quiet and refreshing sleep by its influence on the sensorium. It has no influence upon either the respiratory or circulatory functions. Given in cases of advanced cardiac disease it produces very pleasant hypnotic effects without exerting any injurious influence on the heart trouble. It acts efficiently when given *per enema*. The anodyne influence of amylene hydrate is slight, and morphia should be combined with it where pain is associated with insomnia. The general therapy of the drug is that of sleeplessness, of nervousness, of all grades, even up to delirium tremens, and the insomnia of febrile maladies. In only four out of sixty cases did it seem to be without avail.

MASSOTHERAPY.

Though from the earliest times the value of massage in the treatment of certain diseased conditions has been recognized, until very lately the utilizing of its beneficial influences has been confined chiefly to "bone-setters" and other irregular practitioners of medicine. Following the lines indicated a few years since by our distinguished countryman, Dr. S. Weir Mitchell of Philadelphia, the profession in all parts of the world have been studying and reaping the beneficial effects attending the rational employment of massage in the treatment of disease.

The physiological effects of massage have recently been the subject of a most thorough and pains-taking investigation by Dr. C. Symons Eccles, (*Brit. Med. Jour.*, 1887,) who, after subjecting the various manipulations of which this complex process consists to analysis, defines as follows the share which each takes in the production of the general results.

1. Rubbing (effleurage) stimulates the muscles of the skin, produces dilatation of the superficial vessels, promotes insensible perspiration, incites the cutaneous reflexes, and by acting on the cutaneous nerves increases the strength of the circulation and the rapidity of the pulse.

2. Kneading (petrissage) forces the lymph out of the muscles, increases the velocity of blood current through the part, produces temporary decrease in the size of the limb, increases its muscular power and reduces the pulse-rate, especially when the abdomen is subjected to kneading.

3. *Massage à friction* is a combination of rubbing and kneading; it consists of a series of rapid circular rubbings with the palm or surface of the hands and finger-tips, combined with strong upward friction of the limb, and is especially applicable to the manipulation of joints.

4. Tapping (tapotement,) a series of blows given rapidly with the ulnar border of the extended hand, excites muscular contractions and dilates the blood-vessels, thus allowing of more rapid material exchanges.

After a month of daily *seances* the effects on the skin were that it became softer and more pliable, the veins more distinct, the color deeper, and sensation, which is blunted immediately after the manipulations, becomes ultimately increased in acuteness. At the close of each sitting the axillary temperature rose from 6°F. to 1°F., and the temperature of a limb after ten minutes massage was higher than its fellow of the opposite side, often by as much as 4°F. The effects on the body-weight are probably the most important of all. In ten cases observed the weight almost invariably fell during the first week, and rose steadily during the second third, and fourth weeks, the greatest gain in twenty-eight days being eight pounds naked weight. The appetite and strength improved steadily during the process, and more refreshing sleep was induced.

From many sources the most commendatory reports of the utility of massage continues to come, and it is but fair to assume that being wrested, as it now is, from the hands of empirics and adopted by the regular profession, that it will inevitably become a most important and valuable means of treatment.

ELECTRICITY IN THERAPEUTICS.

In addition to the usual multiplicity of reports of the successful use of electricity in the treatment of diseases of the nervous system, there have been during the past year a greater tendency than ever before to the employment of the electrical current in the management of diseased conditions dependent on, or producing visible organic changes of tissue, or modifications of secretion. Generally speaking, the results along these new lines have been successful, in some instances even brilliant, as in the treatment of uterine fibroids by the galvanic current after the method of Apostoli.

In conclusion, Mr. President, and gentleman of the Society, permit me to say that I should indeed be wanting in gratitude did I not tender my sincere thanks to you for the honor conferred in appointing me chairman of this section, and for the kind and courteous attention with which you have to-day listened to my report.

DYSENTERY—THE ANNUAL ESSAY.

By W. C. Galloway, M.D., of Snow Hill, N. C.

(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

Mr. President and Gentlemen of the Medical Society of the State of North Carolina:

When I reflect upon the large number of brilliant and accomplished physicians composing the State Medical Society, I am at a loss to understand why your partiality should have selected a lilliputian like me to play the difficult and trying rôle I now undertake as your Annual Essayist. I am not unmindful of the honor conferred, and I appreciate it; and I am here, not because I expect to delight your senses by reading some new, striking and original matter, but because I feel it a duty to respond with my little mite when the preference of the Society imposes the task; and no gentleman, in my opinion, should shirk the responsibility, unless debarred by some peculiar idiosyncrasy.

I have chosen the hackneyed subject of Dysentery for two reasons: One is, I have had some experience with the malady, and the other is, the time is opportune, the harvest being ripe for the sickle and the occasion eminently appropriate.

Dysentery is a disease of the large intestine, characterized by congestion, inflammation, infiltration and ulceration of the mucous membrane, attended with tormina and tenesmus, followed by frequent discharges of mucus, blood, pus and tissue débris.

It may be acute or chronic, sporadic or catarrhal, endemic and epidemic. The synonyms are just twenty-four in number, some of which are sesquipedal in length, and to nominate them would simply conduce to the consumption of time in a brief and imperfect dissertation like this.

HISTORY.

Dysentery, or the bloody flux, as it is commonly called, is almost as old as the everlasting hills, and will doubtless keep them company many years hence. Eve merited the first case for tampering with the forbidden fruit. It was well-known in Hindostan nearly three thousand years ago, and it is included among the chief Bible

diseases: "And it came to pass that the father of Publius lay sick of a fever and of a bloody-flux: to whom Paul entered in, and prayed, and laid his hands on him, and healed him. So when this was done, others also, which had diseases in the island, came, and were healed." There was, evidently, an epidemic at Melita, now Malta, at that period. The Greek historian, Herodotus (B. C. 443) states that it and the plague reduced the army of Xerxes on the desert plains of Thessaly. Hippocrates, the Father of Medicine, ably described it in strong, round, flowing, polished sentences, 420 years before the Christian era. Celsus, Aretæus, Galen and others wrote of it most graphically. The latter first used the term scybala. Cœlin Aurelianus announced that, though the discharges in dysentery were frequent, it should be classed among the diseases that constipate the bowels. Opium was first used, combined with galls, by Diocles about 300 B. C. The classic authors of Greece and Rome so accurately and minutely portrayed the leading symptoms of dysentery that they have left little or nothing for modern writers to add. With the approach of the Dark Ages, which covered a period of nearly eight hundred years, and stretched from the seventh to the fifteenth century, medical science, together with general literature, as it were, hung its harp on the willow tree, was narcotized and palsied during the impenetrable gloom of the long and melancholy night, and never awoke to tuneful melody and active life until the birth of the sixteenth century. As soon as the mists begun to clear away we notice the sturdy pioneers in the noble healing art making rapid strides upwards and onwards, among whom I mention Sennertus, Sydenham, Pringle, Stoll, Vogel, Meyer, Zimmerman, John B. Morgagni, and a number of other resplendent luminaries who have added valuable contributions to the anatomical lesions of dysentery. Our present morbid anatomy of the disease is based principally upon the scientific researches of Virchow.

The most voluminous and, possibly, the ablest and most literary article that has ever been written upon the subject of dysentery, either in ancient or modern times, is the treatise by the scholarly Woodward, of the United States Army.

ETIOLOGY.

Dysentery is no respecter of persons. It attacks the young and

the old, the rich and the poor of every tribe and tongue alike; but it loves squalid poverty the best on account of its dirty and unwholesome surroundings. Zimmerman asserts that infants whose mothers have dysentery are born with it.

"From Greenland's icy mountains,
From Afric's sunny fountains"

dysentery is indigenous. Like the wandering Jew, it is ubiquitous. Wherever man can subsist, no matter how hot or how cold, there it will be to torment the fundament and bid defiance to medical progress. It puffeth up itself in the loftiest mountains, its meekness is seen in the lowest valleys, and it sometimes takes a voyage for its health upon the high seas.

Its special habitat, from which it seems it never can be weaned, and where it goeth about like a roaring lion, is the country adjacent to, and lying between, the tropics of cancer and capricorn. I might say that it is a fearful simoon in the torrid zone, and only a gentle zephyr near the poles. It is more frequent and malignant in hot climates, rarer and more mild in temperate regions, and nearly always sporadic and comparatively seldom fatal farther north or south. Draw a line from east to west near the 52d degree of north latitude, beginning at Mt. Yaman, running through Warsaw, Berlin, London, Upper Newfoundland, Lake Manitoba, Southern British Columbia and Upper Mongolia, and north of this, save in its catarrhal form, dysentery scarcely ever happens. The same is true of the 52d degree of latitude south. But as seagulls, stormy petrels and the finny tribe inhabit mostly that part of the globe below the 52d degree of south latitude, it need not be here seriously considered.

Shakespeare, the unrivalled poet of Nature, who has strengthened and embellished every theme that he has touched with his magic quill, mentions "guts-griping" among "the rotten diseases of the south." It would not be improper to state that dysentery in India is as rank as the weeds and the smell. In a letter to Mrs. Drummond Lord Macaulay writes of it: "We have our share of the miseries of life in this country. We are annually baked four months, boiled

four more, aod allowed the remaining four to become cool, if we can. At this moment the sun is blazing like a furnace. The earth, soaked with oceans of rain, is steaming like a wet blanket. Vegetation is rotting all round us. Insects and undertakers are the only living creatures which seem to enjoy the climate. The rainy season of 1837 has been exceedingly unhealthy. Our house has escaped as well as any, yet Hannah is the only one of us who has come off untouched."

In Hindostan dysentery causes three fourths of all the deaths. According to Frank the disease in Egypt is *post pestem maxime timendus*. One-half of all the autopsies made by Griesenger in that country showed dysentery as a primary or secondary affection. It is also perennial there and rages "murderously" in Peru. Continued heat, moisture, vegetable decomposition and sudden changes in the air are the elements that breed it. It seems to love summer as well as a Hottentot. Hirsch mentions 546 epidemics, 404 of which prevailed in the summer and fall, 113 in the fall and winter, 16 in the spring, and only 13 in winter. Fourteen-fifteenths of all of them occurred in the months of June to September. Of 1,500 deaths from dysentery in Boston, New York, Philadelphia and Baltimore, from 1816 to 1827, 1,100 happened in the months of July, August and September. Our census reports, from 1860 to 1870, show the maximum mortality in August and September, minimum in January and February. Where it is endemic or sporadic, excessive heat may cause it to be epidemic. We have examples in England in 1540, Germany in 1583, and in the United States in 1847. But heat alone is not sufficient to generate it, for it occurs in the tropics in winter, and in the severer climates during the cold season. In the city of Cincinnati, in the summer of 1881, the thermometer registered 95° F. for several consecutive weeks, and at night it often ran up to 100°, but the records state that while heat-stroke was common dysentery was rare. Moisture conduces to vegetable decomposition, but there is abundant testimony to prove that *it* can only exercise a predisposing cause in generating dysentery. Of 119 recorded epidemics 62 were in wet and 57 in dry weather. Of 13,900 cases in Bengal the cool season produced 2,400, the warm and dry season 4,000, and the warm and moist period 7,000. Burkhardt asserts that out of 10,000 subjects one-half will

occur in wet hot seasons, two-fifths in dry hot seasons and one-tenth in cold seasons.

Malarial districts are prone to dysentery, but it likewise prevails in dry sandy places where malaria is unknown. Annesley says: "All situations which furnish exhalations from the decay of animal or vegetable productions under the operation of a moist and hot state of the atmosphere, will always occasion dysentery in the predisposed subject—circumstances which, with other causes, combine to generate the disease." Sudden changes in the air are supposed to contribute to dysentery. This is the opinion of most of the Hindoo physicians. One of them states that in the Trans Caucasus "the sultry heat of noon often alternates with a cutting cold wind and *vice versa*. In the same place is now a warm, now a cold, now a glowing hot breeze, and such changes most predispose to dysentery. Didelet remarks of South France: "It is not the fruits, as people believe to-day, which act as causes of dysentery, but the sudden variations of the air." According to Moseley, "it often happens that hundreds of men in a camp have been seized with dysentery almost at the same time after one shower of rain, or from lying one night in the wet and cold."

I might go on *ad infinitum* and multiply the experience of others upon this point, but it would be superfluous to do so when the facts are so generally believed. Of course it would be the height of folly to suppose that a true dysentery could be alone generated by mere increase or reduction of temperature. Such might light the torch after other causes prepared the fuel. There is no doubt that nervous impressions play an important rôle in the production of dysentery. This is well established in prison life. The deficient and badly-cooked food, scant, dirty clothing, filthy surroundings and crowd-poison in prisons, outside of the nervous impressions, evidently should be taken into account. We know that dysentery is one of the frequent troubles of the insane. Whether it is due to external causes or to the fact that the colon is often elongated or displaced in lunatics, and that they suffer a great deal with constipation, it is difficult to determine. Unripe fruits, acrid, irritating, undigestible food and polluted water have all been considered factors in the genesis of the disease by both old and present writers. It is now held that drinking water contaminated by excrementitious matter, particularly the dejecta of disease, is as positive a source of

dysentery as of typhoid fever. Decrease in the number of cases has been repeatedly reported as soon as better and purer drinking-water was procured. There is a larger residue from eating vegetables than from any other kind of food, and the tropics abound in vegetables. In the large intestine, the contents of the bowels becoming harder from absorption, are propelled more slowly forward and tend to fret and inflame more or less the mucous membrane. Such a condition might very readily accelerate dysentery.

Those who have given the most labor to the subject of dysentery are convinced that in its epidemic visitations it is due to some special miasm emanating from the soil. Some sudden outbreaks cannot well be explained in any other way; but the precise nature of the morbid product is yet unknown.

Micro-organisms swarm in healthy stools and render their study in disease exceedingly difficult. Woodard declares that "a large part of the substance of normal fæces is made up of these low forms in numbers which must be estimated by hundreds of millions in the fæces of each day, bacteria, micrococci and torulæ being found floating in countless multitudes along with fragments of partly digested muscular fibres and other débris from the food." Though the torulæ may be, and often are, increased, the other micro-organisms are the same in dysentery as in healthy fæces.

Prior claims that he has discovered a micrococcus as the true micro-organism of dysentery; and Koch has found a special bacillus for the same disease, but whether or not it possesses genetic properties, he is still unable to determine. Animal parasites and vegetable fungi have been mentioned among the causative elements in the production of dysentery. The ancient contributors to the literature of the subject held that it was contagious or infectious. They believed that it was communicated by clyster pipes, contaminated latrines, dejecta, bed-pans, washer-women, physicians, nurses, etc. It was known to spread from house to house and from street to street. But surgeons in the Franco-Prussian war and those of our own country in the recent civil war testify that it was never carried among the people by any of the numerous cases on their return home. Recent writers mainly consider it as holding a place between the contagious and non-contagious diseases. It may spread through the medium of the air or by discharges down with the evil. Observations are recorded where dysenteric stools have been thrown into privies and individuals employed to clean them

out ten years afterward have been infected with the poison. These experiences go to prove of this, as of other similar or analogous affections (e. g., typhoid fever), that the virus or microbe of the disease finds its most favorable nidus in vaults, cesspools, sewers, etc. When the poison is exposed to the air it is much more speedily destroyed, but it is in the meantime, of course, a possible conveyer of the malady. I am slow to believe that the system ever becomes contaminated by long sessions at stools, as some suppose.

If the mucous membrane, which is alike throughout the entire alimentary canal, could be affected in any such manner, the Barkises are safe, but the Micawbers, particularly if they are suffering with stomatitis, are doomed beyond peradventure. The idea is new and original, but doubtless a fancy of perverted imagination. In its general character dysentery resembles cholera, possibly, more than any other disease, and typhoid fever next. As no specific contagium vivum has ever been found for it, positive contagiousness cannot be established. Dysentery is the scourge of army life and is more fatal than all other diseases. Aitken says "it has followed the tracks of all the great armies which have traversed Europe during the continental wars of the past two hundred years." It was worse than the plague in Napoleon's campaign in Egypt. Kinglake states that 5,000 men died of dysentery alone in the Crimea. Concerning dysentery Woodward relates the following: "Soon no army could move without leaving behind it a host of the victims. They crowded the ambulance trains, the railroad cars and the steamboats. In the general hospitals they were often more numerous than the sick from all other diseases, and rivalled the wounded in multitude. They abounded in the convalescent corps, and formed a large proportion of those discharged for disability."

Whether or not it is due to improved hygiene, in this wonderful age of the nineteenth century, it is hard to tell; but certain it is, if statistics are not a snare and a delusion, that the ravages of dysentery are on the decline. Let us hope that sanitation is the forerunner and promoter of this glorious result. Heberden, of England, gives 1,000 or more as the annual death-rate in the seventeenth century, some years exceeding 4,000, whereas in the last century only 200 deaths were recorded. According to Aitken, as a factor of death it has been decreasing since 1852. In England it was six to eight times greater during the forties than now. Like reduction has taken place in Sweden and Bavaria—37,000 cases,

with over 10,000 deaths, are reported in Sweden alone in 1857; to-day there are only 400 or 500 a year; and the mortality has declined correspondingly from 20 to 30, as low as 6 to 8 per cent.

MORBID ANATOMY.

The difference between sporadic and epidemic dysentery is mainly in extent of surface involved and the degree of inflammation and ulceration set up. In the former the lesions are rarely ever deep or widely diffused, and affect principally the lower bowel. In the latter they are generally prominent and extend over the entire large gut and sometimes beyond. The first pathological change is the same in both, it being impossible to tell one from the other; and it is similar to inflammations in mucous membranes elsewhere. There is more or less hyperæmia of the mucous membrane which presents several shades of color, varying from a slight inflammatory blush to a deep madder or purplish red. The color and the hyperæmia are not uniform throughout the diseased surface, being most marked in the descending colon, sigmoid flexure and rectum. Soon the mucous membrane becomes irregularly swelled, softened and pulpy, and is most distinct at the projecting folds. In very mild cases the inflammation, with few exceptions, is limited to the rectum, and only a small number of prominences, together with slight ulceration, are present; graver injuries scarcely ever occur; but in severer attacks the prominences or protuberances are numerous, and, at times, coalesce and give to the surface a lobulated appearance resembling bird's-eye views of mountain chains. In the primary stage the follicles of Lieberkuhn are enlarged, prominent and racemosed and vary in size from a millet seed to a small pea. They expand by increase of their cell element and a whitish, albuminous exudate is thrown out. Their wall capillaries rupture by distention and fill their cavities with blood. Disintegration quickly commences and the expanded follicles burst, forming ulcers. The ulcers are usually oval, frequently spread out and run together, leaving large, irregular, ragged, excavated surfaces. They generally extend in the direction of the folds of the mucous membrane and present a diversity of appearances in the same subject. They are either large or small, round or irregular, superficial or deep, and may be pale or red, angry and irritable. Some are covered with lymph, others with serous fluid. The tubular glands suffer proportionately. The ulcers almost

always extend to the muscular coat and sometimes to the serous layer. Vascular tufts, described by many as polypoid growths, may form between the ulcers and have been mistaken for tumors. The mucous membrane of the colon and rectum is poorly supplied with blood, and as a consequence a rapid, destructive, croupous or diphtheritic inflammation may cause a large portion, or all of it, to become a black, charred, shaggy, rotten mass, which is occasionally thrown off in extensive tubular pieces. When this occurs around the ileo-cæcal valve, invagination or other serious obstruction may result. "Some observers are of the opinion that in rapidly sloughing dysentery the process begins by a submucous purulent cellulitis, which detaches the mucous membrane, this membrane then becoming gangrenous. Many pathologists regard coagulation-necrosis as the basis of all dysenteric processes in the follicles and tubular glands." At times the muscular tunic is thickened, easily fractured, and exhibits a whitish gray hue. In grave epidemics the serous coat, in many instances, is covered by a dark, thin, ichorous exudation.

The intestine, in numerous cases, becomes expanded and is filled with a deep brown or black, foul-smelling, inflammatory product. Putrid coffee-ground fluid is indicative of malignancy. When extensive exfoliation of the mucous membrane occurs, with destruction or marked injury to the deep structures, the edges of the ulcers fail to unite and large cicatrices are formed, causing "valve-like" or "annular" folds which constrict the gut and diminish its calibre. In rare instances the ulcers lead to perforation and peritonitis, and if perforation happens in the cæcum or rectum, fecal abscess may follow. Congestion of the liver is frequently associated, and this organ is sometimes the seat of abscesses, which occur much oftener in hot climates. If multiple, they are likely due to pyæmic poison set up by dysentery; if single, they are considered purely accidental. The mesenteric glands are now and then very much enlarged and softened and present a livid or deep blue color. In some cases they contain more or less pus.

The following are some of the complications: Pneumonia, pleurisy, gangrene of the lung, pericarditis, softening of the spleen, corneal ulcers, nephritic fatty degeneration, congestion of the brain and membranes and subarachnoid dropsy, acute bronchitis, paralysis, hydrops, scurvy, erysipelas, variola, rheumatism and malaria. In chronic dysentery the mucous membrane is dense, tough and unyield-

ing, and the intestinal cavity is diminished. The ulcers are sluggish, heal slowly and complete cicatrization is the exception. Multiple abscesses of the liver often take place and polypoid tumors are met with.

CLINICAL HISTORY.

In several instances all the symptoms of dysentery have been masked and the disease could only be recognized after a careful autopsy. J. F. Hammond reported a case with mania and involuntary diarrhœa, but no trace of blood or mucous could be detected in the stools. The mucous membrane of the cæcum and rectum was swelled and in a sloughy necrosed condition and the colon was perforated in two places. Some few of the most malignant attacks are so violent as to overwhelm the constitution at once like the worst forms of Asiatic cholera. The great majority of cases are preceded by premonitory symptoms. There is a feeling of general indisposition attended by thirst, dry skin, coated tongue, slight fever, deficient appetite and uneasy sensations in the abdomen, with mild colicky pains and diarrhœa. Then follows griping, grinding, twisting pains (tormina) in the bowels, accompanied by an urgent, irresistible, almost constant desire (tenesmus) to stool. The evacuations are usually small, but fraught with big expectations, and consist chiefly of mucus or mucus streaked or mixed with blood, with now and then feculent matter containing some hard, roundish lumps called scybalæ. Although the discharges are scant, they are frequent, and during the first week the albuminous matter passed amounts to about two ounces daily. They occur from twelve to twenty-four, and may reach as many as two hundred times in the twenty-four hours. With some patients, to speak metaphorically, there is a nest of hornets in the rectum and the commode is in constant demand almost the livelong day. The chief source of suffering is due to tormina and tenesmus. The degree of exhaustion and emaciation is out of proportion to the mildness of the attack. Improvement, if it occurs, and it almost always does, commences in a few days and recovery is complete in the course of a week thereafter. Graver cases last from ten to twenty or more days, and may be ushered in with a distinct chill or rigors. The symptoms resemble pretty much those of the milder type, only they are intensified and more alarming. The pulse is fast and feeble, often reaching from 105 to 120, or faster. The temperature ranges between

100 and 104. The countenance is pale and anxious, and the tongue heavily coated white or brown, and may be moist or dry. Nausea and vomiting are frequent, the strength rapidly wanes and great nervous prostration is present, with irritability and restlessness. There are tenderness and pain over the course of the diseased bowel, located mostly in the left iliac fossa, and any kind of solid food taken into the stomach is followed by churning, griping pains and expulsive desires. Tympanites is an accompaniment and mild or active delirium may be associated. The evacuations change in character—they are more copious, brownish or brownish-red in color, and certain sloughy, stringy shreds, resembling "washed raw meat" (the latura carnium of the old writers), mixed with blood or purulent matter, or they present a greenish appearance like spinach. A large quantity of pure blood is sometimes passed. The urine is high-colored and diminished. Micturition is frequent and painful, and strangury occasionally occurs. The large intestine does not alone suffer, but all of the juices engaged in digestion are either altered or checked.

In the worst types the fever is marked, the pulse is very weak, rapid, irregular and compressible, reaching 130 or more per minute. The tongue is dry and red or black, glazed or furred. Thirst is great and urgent, sordes appear upon the teeth, violent delirium may or may not set in, the countenance is anxious and cadaveric, the surface cyanosed, emaciation appears early, and the body is hot and the extremities cold. The discharges are large, dark, bloody and purulent, and their odor in some cases is about "the vilest compound of villanous smell that ever offended nostril," and is compared to carrion or the intolerable smell of a deep suppurating burn, involving extensive area of surface. Microscopically the stools "present abundant epithelium cells, blood, exudation and pus cells, and remnants of the membrane. Peculiar cells and other bodies have also been described." Children often suffer with vomiting and convulsions, and, at times, the intensity of the tenesmus produces prolapsus ani.

Death is foreshadowed by irregular pyrexic exacerbation, diminished tormina and tenesmus, bloody, copious and involuntary passages, hiccough, subsultus tendinum, cold, clammy perspiration, thready, flickering pulse, hollow eyes, hippocratic countenance and collapse.

DIAGNOSIS.

When dysentery exhibits all of its common symptoms it is recognized without difficulty, but when its characteristics are masked, as in Hammond's case, only a post-mortem could possibly settle its nature. Fortunately such cases are extremely rare. The tormina and tenesmus and the peculiar muco-sanguinolent and scybalous discharges are considered pathognomonic; but as some few diseases resemble it to some extent discrimination is necessary.

It may be mistaken for diarrhœa with hœmorrhoids, rectitis, intestinal catarrh, cancer or polypus of the rectum and malarial hæmorrhagiæ. An examination of the rectum will establish the character of a diarrhœa with piles as well as that of cancer and polypoid tumors, acute rectitis is ushered in with cramping, colicky pains and constipation, while dysentery, almost certainly, begins with diarrhœa, and the dysenteric stools contain mucus, pus, blood and scybalæ. In intestinal catarrh, as a rule, the mucus and blood are not commingled in the passages, and there is absence of the peculiar dysenteric odor. Tenesmus is wanting, the discharges are profuse and the constitutional symptoms are less striking. Frequent vomiting and abdominal meteorism, with sudden collapse, indicate intussusception, and in that trouble there are no scybalæ and the stools are without the characteristic smell. I mention malaria hæmorrhagica as a novelty, as it is nowhere alluded to in the text-books.

In 1887 I was called in consultation to see an ugly, typical case of acute dysentery, and the attending physician, a very good one, too, was treating it for malaria hæmorrhagica. The large amount of blood from the bowels misled him. There was no hæmorrhage from the kidneys, and the striking, never-to-be-forgotten, jaundiced hue was absent. Besides, tormina and tenesmus were present, with numerous muco-sanguinolent discharges—the blood in them predominating.

PROGNOSIS.

This is favorable or unfavorable according to the mildness or gravity of the attack. It varies between great extremes. Serious complications render it unfavorable. Mild cases tend to recovery, malignant ones to death. Some epidemics are marked by a frightful mortality, particularly in army life. Trousseau called it the most murderous of all diseases.

TREATMENT.

To prevent the spread of dysentery it is advised to use hygienic measures. The stools should be disinfected as soon as they are discharged by sprinkling with pulverized copperas or slacked lime, or by pouring over them crude muriatic acid. They should then be mixed with sawdust or some other combustible material and burned, or they should be emptied into holes in the earth two or three feet deep, away from wells, cisterns, etc., and properly covered. The sick room should be freely ventilated, the bed-linen frequently changed and thoroughly boiled in water, and the receptacles should be kept scrupulously clean. The drinking-water should be the purest that could be obtained, and if there should be any reason to suspect impurities it should be well boiled. Sufficient clothing and proper food are exceedingly important, and individuals should be careful not to catch cold.

The National Dispensatory enumerates just ninety-five remedies for dysentery, but the following, judiciously selected, will meet the demands in the great majority of cases: Opium in some form, clysters, medicated or not, ipecac, subnitrate of bismuth, Epsom salts or castor oil with turpentine, rest and diet, with, sometimes, soothing applications to the bowels.

The very mildest cases need not necessarily take the bed, but they should keep the recumbent position. Quiet and diet will speedily cure them. No solids should be allowed. Water and milk will be sufficient in the way of drink and food. If milk cannot well be taken, meat soup or egg-nogg may be substituted. A little starving will not be injurious. However, I cannot see any impropriety, even in the mildest cases, in administering ten or fifteen grains of pulverized ipecac at once, and then use per rectum to prevent tenesmus, if annoying, ½ gr. morphia in solution or suppository, or ⅛ gr hypodermically. Repeat the dose whenever required. Or give 1 oz. Rochelle salts, or a Seidlitz powder, or two tablespoonfuls of castor oil with 10 drops of spirits turpentine—flush bowels with a quart or more of warm water, and use Dover's powders in usual doses to quiet. A very eligible prescription, where one has any misgivings of large doses of ipecac, is morphia ¼ gr., pulv rized ipecac ¼ gr., and subnitrate bismuth 5 grs., to be given every hour or two until tormina and tenesmus are subdued. It should be preceded by a purgative, and it may be given in capsule or in syrup of tolus or any nice syrup, or at the bedside in the country

in treacle, honey or sweetened water or water. The ipecac and bismuth may be given per orem and the morphia hypodermically. In severer cases the patient should go promptly to bed and remain there until well. Treatment may be begun with one of the purgatives already mentioned, or 30 grains of ipecac, in capsule or suspension in a fluid mixture may be taken, after which, for three or four hours, no food is to be allowed, and thirst is to be assuaged with a little crushed ice, or by sucking lumps of ice, or by taking very small quantities of cold water, or sangaree, or vinegar and water. Pardon a digression right here. The books talk glibly and glowingly of ice and numerous delicacies that can be commanded by well-to-do people, and it is all well enough, but such information will stand a poor country doctor in bad stead when he is ten miles from town in some little old log-cabin in the lane or woods, or wherever, indeed, the genial sunlight of heaven may peep through the crevices. Ice is out of the question—the days of miracles have passed—no manna will fall—milk and honey without money will not always flow by the door, and brandy is difficut to obtain. A little corn-bread and pork and garden truck are about the only luxuries obtainable. Folks a little higher are very nearly in the the same predicament. These cases happen right often, particularly among the negroes, and the doctor who can make the most of the ugly surroundings is a real hero. After the large dose of ipecac smaller quantities may be required in the course of eight or ten hours.

Ewart, who is a great admirer of ipecacuanha, bestows upon it this eulogy: "It produces all the benefits that have been ascribed to blood-letting, without robbing the system of one drop of blood; all the advantages of mercurial and other purgatives, without their irritating action; all the good results of antimony and other sudorifics, without their uncertainty; all the benefits ascribed to opium, without irritating, if not aggravating or masking the disease."

An enema of warm water may be thrown up the bowel; it is often very soothing and helps to bring away the decomposing material held in the intestine. Laudanum and dilute sulphuric acid or nitric acid by the mouth, or morphia hypodermically, may be associated with ipecacuanha. Each case is a law unto itself. Treat the individual and his symptoms as they demand. Turpentine enemas to relieve tympanites, if great. Flannel or thick cloths, wrung out of hot water, sprinkled on the under side with oleum terebinthinæ to soothe the bowels, or warm hop, or mush, or bran poultices, similarly treated with

turpentine, may be used; morphia for pain, restlessness and tenesmus, preferably hypodermically, or in any convenient way; hot wet cloths or poultices over bladder and morphia to relieve strangury; small doses of salts or oil to control costiveness; morphia and ergot to suppress undue hæmorrhage, with perfect quietude; occasionally antifebrin, to reduce excessive heat, or antipyrin, if the heart is good; counter-irritants over stomach and on the back opposite the stomach, for nausea and vomiting.

The diet should consist chiefly of milk, coffee, egg-nogg, jellies, broths and alcohol in some form to suit the patient. Brandy and milk are the best remedies. The milk may be boiled and peptonized if necessary. In the worst forms treatment is unsatisfactory. When the nervous system is profoundly shocked stimulants should be administered immediately and pushed almost to the point of drunkenness. Malaria, scorbutus, rheumatism and other complications are to be treated as they arise with remedies appropriate to each.

Chronic dysentery requires special dieting and careful attention to the general health. Flannel should be used next to the skin, particularly over the abdomen. Warm and sufficient clothing should always be worn. Undue exposure to sudden mutations of the weather should be avoided. Ipecacuanha in small and repeated doses is recommended, and medicated enemas are lauded by some and condemned by others. Loomis speaks highly of cod-liver oil and the pernitrate of iron. An ocean voyage or change of residence to the mountains or seashore will generally alleviate it or effect a permanent cure.

I am indebted for the materials in the preparation of this Essay mainly to the works of Drs. Loomis, Flint, Roberts, Niemeyer, Aitken, Whitaker and Johnston.

Let me here epitomize my own cases—50 in 1886 and 30 in 1887, total 80: 1 adult death—only one ever had in my own practice; mortality among infants and small children not remembered; 2 had acute attacks took on chronicity; 1 had parotiditis in right gland; 3 had acute articular rheumatism—hips, knees and ankles involved in one, knees in another, and hips, knees, ankles, first joint great toes, shoulders, elbows and wrists in the other—last was sick altogether three months. About four-fifths of the cases between April and July. Pulse normal to 160, temperature natural to 105, malarial complications numerous, but number not known, 11 excessively ill—time 14 to 35 days—complications not included—3 had rigid abdomen like the tonic rigidity in peritonitis—certainly not peritonitis. (This feature not mentioned by any of the books.) Twelve cases, so far, this year, without any special features.

HOW FAR DO THE NEW ANTIPYRETICS SUBSTITUTE QUININE?

By Dr. R. F. Lewis, Lumberton, N. C.

(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

Probably there is no question more interesting to our profession to-day than the one I have, at the suggestion of our President, chosen for this discussion. Professor Austin Flint reached the following conclusion in regard to fevers, which is in accord with the views of the profession to-day:

"Fevers, especially those belonging to the class of acute diseases, are self-limited in their duration, and are each one due to a special cause—a micro-organism, the operation of which ceases after the lapse of a certain time."

We are yet unable to destroy definitely the morbific organisms, which give rise to continued fevers, and we must be content for the present to moderate their action and sustain the powers of resistance of our patients.

Aside from the influence of complications and accidents, the ataxic symptoms in fevers, the intensity and persistance of which endanger life, are secondary to the fever and are usually proportionate to the duration of the temperature. These symptoms are ameliorated by means of treatment directed to a reduction of the general temperature of the body.

Just a few years ago, since many of us began the practice of medicine, many new and valuable ideas along this line have been suggested and taken practicable shape. How many of us to-day could intelligently and satisfactorily treat a case of continued fever without the use of a clinical thermometer? Along with this instrument comes a new line of remedial agents which will eventually be as essential in the treatment of inflammatory diseases, as the thermometer now is, to indicate the degree of bodily heat. Chief among these new remedies are a class of drugs known as *antipyretics*, and those of the greatest importance to us at this time are *Antipyrin* and *Antifebrin* or *acetanalide*. In 1885–'86 the former

of these came into practical use as an antithermic, and this was followed in 1886–'87 by the introduction of antifebrin.

The scarcity of Peruvian bark and the high price of quinine, led to the dream that chemistry would hit upon the synthetic manufacture of quinine, and several times have sealed packages been sent to the Paris Academy of Sciences claiming the discovery of the artificial alkaloid, and as many times have these hopes been blasted, until in 1884 the claims of antipyrin as an antithermic and an analgesic were confirmed. The introduction of these remedies forms a chapter in the history of chemicals which is but the beginning of wonderful things. The antipyretic effects of quinine was not recognized in this drug until a few years ago, and its antiperiodic properties not thoroughly known; the doses prescribed were so infinitesmally small that the effect was scarcely notable. In this fact, no doubt, can be ascribed the very great mortality attending the prevalence of remittent fevers in many parts of our State, especially along the banks of the Cape Fear River. Thirty-five or forty years ago remittent fever was almost as great a scourge there as yellow fever could have been. If a white person contracted this fever on the river plantations death was almost invariably the result. Many of the wealthy planters built elegant residences overlooking the stream, but in the autumn months were forced to fly to the pine woods, and there remain, in dwellings less comfortable, drinking warm surface water (but breathing air uncomtaminated with malaria), until Jack Frost put in his personal appearance. Some few years ago I remember to have examined a gentleman who was reared in this section who made application for a policy in a life insurance company, and I was amazed at the answer given to the question, What was the cause of death of grand-parents, parents, brothers and sisters? and of these there were quite a number. The answer in each instance was "bilious fever."

With the lights now before us, and the remedies now in our hands, am I not justified in saying that we could have safely tided over nine tenths of these cases? It may be interesting to contrast the treatment of this disease at that time with that of the present day. I quote from a standard author of fifty years ago: "In cases of bilious fever, when the patient possesses a good constitution, and especially if he has been used to free living, and is suffering much pain, there can be no doubt of the propriety of bleeding, which in

many cases requires a repetition. A puke of 15 or 20 grains of ipecacuanha may then be given to clear out the stomach, and this will sometimes so quiet the spontaneous vomiting that purges and sweats may be instantly used, but when it does not, it will be necessary first to leech and then to lay a blister over the stomach, which often has the happy effect of stopping the vomiting and causing an early remission of the fever. If the stomach still continues irritable, an opening downwards will be more likely to relieve it than any other means. Should this treatment fail in bringing on a free perspiration, no delay should be made, after five or six days, in laying blisters on the ankles, and when drawn dressing them with mercurial ointment, that the gums may become affected; and when the fever has been brought to an intermit, or when the perspiration has been extensive, no delay should be made in using the bark. In low cases, and probably in most of those fevers far to the South, we must not wait for a perfect remission, but begin with the strong decoction of bark the moment the pulse alters for the better, this, however, is not to be done before the fever has run on some days and after the blisters have been applied to the ankles. In such cases there is need of profound judgment, and the physician must first settle in his mind the probable length of the fever from preceding cases, the symptoms, patient's constitution and experience. If the case be of that mortal stamp, that threatens to end unfavorably in five or six days, he must try the bark by the third day or even sooner, but if the patient and fever is likely to hold out into the second week, it would be imprudent to use the bark before six or eight days, unless the remissions were considerable, and this event should be considered in blistering the extremities. Dr. Fowler has recommended his solution of arsenic in those fevers, but never till the bark itself has been tried in vain, so may *quinine*, but not till the bark has been rejected. It would appear that those physicians who recommend *dog-wood bark* and *black-oak bark* and *quinine* as preferable to Peruvian bark are either ignorant of the virtues of good bark, or happily ignorant of bad bilious fevers; such recommendations come from the North, but bilious diseases from the South, and as far as the east is from the west so far should all such comparative trash be pushed from the mouth of a patient that is ill with a dangerous remittent."

The first and leading object in the treatment of remittent fever

to-day, is to arrest or abort the disease by antiperiodic remedies, of which quinine is the surest agent. As soon as the character of the disease is determined by the occurrence of a remission, the sulphate of quinine should be given in full doses of 5 to 15 or 20 grains, and repeated every two to four hours, until it produces slight deafness or ringing in the ears, suspending the remedy when these manifestations of cinchonism appear. If the remedy be not tolerated by the stomach, it should be given per enema. If cinchonism be not produced during the remission, the remedy may be continued during the exacerbation of fever. This is preferable to waiting for another remission.

Aside from the abortive or curative treatment just mentioned, palliative measures are to be employed according to the indications in individual cases. The abstraction of heat by external cold applications, and the reduction of temperature by antipyretics, administered internally, without affecting the special cause of fever, improve the symptoms which are secondary to the pyrexia.

In the treatment of that class of fever known as typho-malarial, which has been so prevalent in many parts of this State, the new antipyretics are secondary in their value compared with *quinine*. In these fevers a rise in the temperature invariably takes place every afternoon, and in those cases quinine does its very efficient work; if 20 to 40 grains are administered in the early part of the day, the temperature will be less in the evening by two to four degrees than it would otherwise have been should the quinine have been omitted. Observations repeated in a number of cases substantiate this fact.

To sum up, then, the relative value of quinine with that of the newly discovered antipyretics, we will conclude that nothing has yet been discovered that will substitute quinine. In the treatment of all fevers of a high grade this drug is indispensable for its antithermic as well as for its antiperiodic effects. This antithermic effect is not produced so energetically nor is it so immediate as that of the newly introduced antipyretics. We are then to receive them as valuable adjuvants rather than substitutes in the treatment of acute diseases.

As far as I have been able to gather it, I will give the history, experiments, as well as the danger attending the administration of antipyrin and antifebrin. They are both products of aniline. Antipyrin is the more powerful of the two drugs, and consequently

the more dangerous. In addition to its very great antithermic properties, it has been found valuable in the treatment of many forms of neuroses. Legrowe reports to the Academy of Medicine of Paris (*Boston Medical and Surgical Journal* for March, 1888) favorable results from its administration in chorea. One gramme of antipyrin is dissolved in 20 grammes of syrup and the whole administered at one dose; three such doses are given in twenty-four hours. By its sedative action on the spinal cord it has proved useful in strychnine poisoning. It has also benefited some cases of epilepsy.

Dr. Larget, of Marseilles *Therapeutic Gazette* for March, 1888), following the suggestion of Chouppee, gave 30 grains of antipyrin in solution, per enema, to relieve labor pains, which seemingly had no effect; a second injection was repeated in an hour, which diminished the pain most remarkably, not affecting the contractions which occurred regularly about every eight minutes—there were no after-pains.

The February number of *Revista de Sciences* contains the report of a case of intercostal rheumatism following herpes zoster in a man of 64 years of age suffering for eight weeks; had been treated with iodide of potassium; 3 grain doses of antipyrin relieved him. Another case of a man suffering with syphilytic ulcers on both tibias, the pain keeping him awake at night, was subdued with this drug in 3 grain doses. Antipyrin has been used successfully hypodermically in the treatment of severe cases of neuralgia of trigeminus, in articular rheumatism, in gastric crises and bronchial asthma.

Numerous cases of poisoning by this drug have been reported. In the *Lancet* of February, 1888, Dr. Oscar Jennings reports a case: The patient was a woman 67 years old, who was of a gouty ancestry, and suffered with swelling of the hands without positive pain, but with sensations of pricking, which interfered somewhat with the use of the hands. She was given 37½ grains of antipyrin three times a day for eight days. When the skin of her arms became covered with erythematous patches, her eyes at the same time became uncomfortable. The following night she scarcely slept at all; the feet were icy; there was no nausea or giddiness. The next day her face was red and extraordinarily swollen, so as to almost close the eyes, just leaving a narrow slit for vision. The rash was general and of

the color of pomegranate and arranged in patches separated from each other by slight but distinct intervals. This condition gave rise to no suffering, there was only slight itching, but the patient felt as if the inside of the body was filled with ice. There was irritation of the nasal fossæ and hoarseness of the voice. The pulse was twice as fast as usual, but the temperature was lowered. There was slight buzzing of the ears. The symptoms gradually disappeared, but the patient still suffered from considerable prostration and sensations of cold. Dr. Jennings says that since encountering the case above cited the following case came under his observation: Mrs. I. was treated with antipyrin in order to be relieved of rheumatic pains. She was ordered 75 grains a day. On the second day some of her friends called upon her. They found her with her head between her hands, the elbows resting upon the knees, rocking backwards and forwards, repeating incessantly, "I don't know what is the matter with me. I remember nothing. I am becoming like an idiot. I am going mad." She was subsequently confined to her bed with severe gastro-enteritis for six weeks, and kept her room for three months. Lately she has improved and gained her lost intelligence.

The *Medical Register* for March, 1888, reports a case of poisoning by antipyrin in only 10 grain doses. A lady took by direction of a physician, for a nervous headache, one of two powders containing 10 grains each. She was otherwise in good health. In three minutes she began to experience a snapping pain in her head, along with itching and burning in the mouth and throat, particularly in the roof of the mouth. This feeling extended also to the eyes, nose and ears, and became so violent that she involuntarily thrust her fingers into her mouth and ears to seek relief, sneezing soon commenced and became violent, the act being repeated at least fifty times, while the nose and eyes were running a very copious watery fluid. The violent symptoms lasted ten minutes, but she did not perfectly recover until the next day.

At our last meeting Prof. Dabney, of the University of Virginia, related a case of fatal poisoning in his own practice by antipyrin. He found his patient, a lady, with an exceedingly high temperature, and administered 30 grains of the drug. He left his thermometer with the nurse, directing 30 grains more to be given at a certain interval unless the temperature had declined to a stated degree.

When the time came for the second dose to be administered, without examining the degree of heat, as Dr. Dabney had strictly enjoined, the medicine was given, which in a short time was followed by heart failure.

Antifebrin or acetanilide was discovered in 1835, and was studied by Menchat Reve, in Germany, in 1882. It is a product of the reaction of glacial acetic acid upon aniline. When it is pure it is perfectly white and has no odor; heated upon platinum foil it should give a colorless fluid, it should volatize and leave no residue. It ought not to give, with hyperbromite of sodium, an orange yellow precipitate—a sure indication, when this reaction follows, of the presence of free aniline. It is soluble in alcohol, wine or any of the alcoholic tinctures. Compound tincture of cardamon is a good menstruum, but, best of all, it may be administered in capsules.

Prof. Dujardin Beaumetz is of the opinion that this is not a good antithermic, particularly in typhoid fever; given in small doses (7½ grains) it is liable to produce cyanosis, and may depress the temperature three degrees or more; in apyrexia it produces no appreciable physical effect. (*Therapeutic Gazette* October, 1887.) As an analgesic, especially in locomotor ataxia and in acute articular rheumatism it acts with peculiar energy, and Prof. Beaumetz finds it useful in epilepsy. If it be true that acetanilide depresses the temperature or the nervous system and the respiratory power of the blood, the cyanosis he warns against may be a real danger. It has, however, been largely given by others and is growing in favor as additional experience is obtained with it.

In commenting on the effects of antipyretics Dr. Loomis says that "every practitioner of medicine should put to himself this question, How much can be accomplished by the use of antipyretics in arrest and safe conduct of disease, and are there no dangers attending their employment? Whatever answer may be given, he is convinced that the heroic use of antipyretic measures, which has recently come into general use, the one idea of the modern therapeautists being to reduce temperature at all hazards, has a side danger that should not be lost sight of. If the temperature in a case of fever or pneumonia range about 105° or 106°, and can readily be reduced by mild antipyretic remedies, the condition of the patient at the same time being made more comfortable by their use, he most certainly recommends their employment; but when powerful antipyretic measures

are required to effect temperature reduction, and its reduction is only temporary, he is quite confident that such reductions are obtained only by an expenditure of vital force on the part of the patient, which largely diminishes his chances of ultimate recovery, especially if the hyperpyrexia has been long-continued, having frequently noticed that their daily employment for a prolonged period has been followed by grave nervous phenomina, and the evidence of the most extreme cardiac failure, greater than could have been caused by the high temperature alone. If temperature reduction does not shorten the duration, mitigate the severity or arrest serious complications in disese; if the ratio of mortality is not diminished, as to encourage us that we are making advances by antipyretic measures, on what basis are we justified in their use? Evidently only on the basis that by their use we relieve one of the many phenomena of fever. If this can be accomplished without serious loss of vitality, or at the expense of the reserved force of the patient, we are justified in their use, but do not let us imagine that, by reducing temperature, we are controlling fever.

THE RELATIVE VALUE OF ANTIPYRIN AND ANTIFEBRIN.

Dr. W. G. Barr, of Bridgeport, Illinois, has made a most careful clinical study of these remedies on himself whilst suffering from neurasthenia complicated with malaria. He thus sums up his experience in the *Therapeutic Gazette*. This table, he says, will suggest the relative use of the two drugs:

Antipyrin.	*Antifebrin.*
Lowers the temperature in half an hour.	In an hour or more.
Effects last two hours.	Effects last six hours.
More diaphoretic.	More diuretic.
Depressing after effects.	No after effects.
Cerebral sedative.	Cerebral, vaso-motor and muscular stimulant.
Dose 15 to 30 grains.	Dose 5 to 15 grains.
Tolerance from continued use.	Tolerance from continued use.

He further says, from the patient's point of view (which is nearly coincident with the physician), antifebrin is much to be preferred in continued fevers, because the dose is one small capsule, instead of

three, the effects lasting so long requires one-third the number of doses. The tonic stimulation excels the depression and after malaise, and the cost is one-fourth that of antipyrin. The antipyretic action of antifebrin is as strong or stronger than antipyrin, and the only objection is its slowness of action. In insolation and other cases where a quickly-acting antipyretic is necessary, and when it has a specific action on the pathology of a disease, as is claimed in rheumatism, antipyrin is to be preferred. Whenever one can wait an hour for the antipyretic action to begin he greatly prefers antifebrin, and so he believes will the patient also. He regards its stimulant or tonic effect as very valuable to weak patients.

I find in the *Medical Analetic* April 26th, 1888, an article from the pen of Dr. Elizabeth Stow Brown, on Acetanilide or Antifebrin, which is full of interest, and though it covers some points already mentioned, is worth producing here: "The introduction of acetanilide to the profession as a therapeutic agent took place in August, 1886. Drs. Cahn and Hepp, of Strausburg, then published their study of the substance, as in the case of antipyrin, it was the antithermic action which first attracted attention.

PHYSIOLOGICAL ACTION—NERVOUS SYSTEM.

Lepine, Dujardin-Beaumetz, Sunenberg, Charcot and Weill agree in the power of acetanilide to diminish the reflex excitability of the spinal cord. Weill observed, after administering to an animal, in doses of 25 to 50 centigrammes per kilogramme of weight of animal, general prostration with stupor; progressive but rapid lowering of the temperature; sensation at first diminishes, then lost, the animal sinking into a comatose condition, followed by spasmodic convulsions, and dying in from twenty-four to thirty-six hours after ingestion. It acts especially on the respiratory functions, which is markedly slow. According to Heinzelmann, deafness and mydesis have occasionally occurred with therapeutic doses.

Circulatory System.—The effect upon the heart, blood-vessels and blood is very prompt. The heart at first is slightly quickened, then slowed and strengthened. Prolonged use of the drug is said to produce fatty degeneration of the heart-muscle. (*Gaillard's Journal*, February, 1888.)

Acetanilide first stimulates the vaso-motor constrictor system, leading to increased arterial tension. This effect is soon followed

by dilatation of the cutaneous arterioles and perspiration immediately appears.

Acetanilide markedly diminishes oxyhæmoglobin of the blood, and methæmoglobin increases. This produces a state of internal asphyxia from the interference with the respiratory power of the blood. Cyanosis in this way is not unfrequently seen from the therapeutic doses, but is quickly recovered from.

Lepine says that the change of methæmoglobin back again to oxyhæmoglobin takes place rapidly. The methæmoglobinuria is entirely intra-corpuscular, and the drug exercises no destructive power upon the red blood cells.

Temperature.—Acetanilide has powers which would lead the observer to suspect an antithermic action. It dilates cutaneous blood-vessels and produces free perspiration, and it greatly retards the processes of disassimilation. This latter action presumably depends upon the interference with the respiratory power of the blood, but it is not as yet wholly explained. Evans (*Ther. Gaz.*, June 15, 1887), in an elaborate article illustrated with charts, gives the results of a pains-taking study of the antipyretic action of acetanilide. His conclusions are:

"1. That antifebrine effects a marked depression of normal bodily temperature.

"2. During the depressing action of the drug on normal temperature, it seems to cause a slight fall of arterial pressure. This is not constant.

"3. Although it influences so markedly normal bodily heat, it seems to possess little power against the pyrexia produced by the introduction of pepsin into the blood. Under these circumstances the administration of acetanilide causes rise of the hitherto depressed pressure, and also increase of the bodily heat. (This must depend on some organic change produced by the digestive ferment.)

"4. It reduces normal temperature by influencing both heat-production and heat dissipation.

"5. Acetanilide in fever reduces high temperature by decreasing heat production."

Alimentary Tract.—Acetanilide has no influence on the digestive system.

Skin.—It is only very rarely that any eruption is produced. Cahn and Hepp have seen the appearance of the miliaria cysts and rubra.

As with antipyrin, the action of antifebrin is almost invariably accompanied by profuse perspiration, which often is the first physiological effect. Atropine does not counteract this sweating.

Urine.—The urine is greatly increased in amount, the direct result of the increased arterial tension (*Osler, Ther. Gaz.*, March, 1887). Cahn and Hepp recovered acetanilide in its own form from the urine.

Antiseptic Properties.—Cahn and Hepp think the drug has energetic antiseptic properties. This action is denied by Dujardin-Beaumetz, but affirmed by Lepine. The latter thinks that the antiseptic action is due to the aniline, which, being set free from combination, exerts its antifermentative power. This, however, is hardly in accord with what chemists claim to be the extreme stability of acetanilide.

Tissue Change.—Acetanilide not only retards tissue disintegration, but favors fatty metamorphosis.

THERAPEUTICAL ACTION.

As an *analgesic*, Dujardin-Beaumetz claims that acetanilide should be placed in the same group with antipyrin and phenol (*L'Abeille Méd.*). Démieville (*Rév. Méd. de la Suisse Romande*) reports 80 cases of all varieties of pain in which he used this drug successfully: the pains of neuralgias, of tabes dorsalis, headache, migraine, pains with or without nerve alteration. As an *hypnotic*, acetanilide has been found satisfactory. Dr. G. Dalton Hays (*N. Y. Med. Rec.*, December 17, 1887) observed an hypnotic action after its administration for headache, and proceeded to use the drug for pure insomnia. The results were good. Dr. Hays advises beginning with doses of 5 grains, and creeping up; and as the hypnotic action seems to be sometimes delayed, he gives the dose two hours before bedtime. As an *antispasmodic*, the drug has received little favor, though it has been tried to some extent in chorea and epilepsy. In acute alcoholism, Kell (*N. Y. Med. Rec.*, February 18, 1888) has found its results satisfactory. As an *antipyretic*, acetanilide has been proven effective against fevers of nearly all types. The temperature falls in about an hour, and remains lower for about six hours. Only rarely do rigors attend the subsequent rise. The drug is to be given in doses of from 4 to 10 grains. Experience has proved that the hyperpyrexias of phthisis and typhoid fever are

most easily affected (Fast.) In typhoid fever the results have been very good, and antifebrin has fulfilled well the indications for an antipyretic drug. In phthisis, acetanilide has been highly commended. Cauldwell (*N. Y. Med. Rec.*, April 16, 1887) concludes that it is the best drug to control the chill and fever of phthisis. It has rarely any unpleasant after-effects, though in many cases it produces sweating, and occasionally cyanosis occurs. It does not interfere with digestion, and can always be retained. It increases the urine and quiets the nervous system, producing a feeling of well-being in the patient. As an *antiperiodic*, acetanilide has shown no certain power. In *rheumatism* there is much evidence of its good effects as a symptom medicine to be used at the beginning of an attack of the acute articular form (*Jour. Ment. and Nerv. Dis.*, January, 1886, and Riese, Eisenhardt, Cahn and Hepp). In *dysmenorrhœa* and as a *uterine sedative*, acetanilide has been used successfully (Chouppe, *Br. Med. Jour.*, Dec. 17, 1887).

Comparative Action of Antipyrin and Acetanalide.—Acetanalide is effective in about half the dose of antipyrin, and costs one-half as much. The two drugs are about equal in their power to reduce temperature; but antifebrin is more certain than antipyrin, less liable to produce profuse sweat, tendency to collapse and to chill as the action passes off (*Gaillard's Journal*, March, 1887).

While antipyrin lowers the temperature in half an hour, its effect lasting two hours, antifebrin takes longer, one hour or more, and its effects last six hours. Antipyrin will be found more diaphoretic; antifebrin more diuretic (Barr, *Ther. Gaz.* June, 1887). In migraine both drugs are about equally successful. In epilepsy their efficacy is about equally doubtful; while as hypnotics antifebrin is preferable.

In hay-fever they are of about the same value. As analgesics, antifebrin is superior to antipyrin. The special advantages of antifebrin over antipyrin (Simpson, *N. Y. Med. Rec.*, December 3, 1887) are its easy administration, tastelessness, small dose, cheapness, its never producing nausea and vomiting, its pleasant effect on the system, and its diuretic effect.

There have been, however, warnings uttered against antifebrin. The *Lancet* of July 9, 1887, reports antifebrin as an "uncertain and, indeed, dangerous remedy"; that its action is uncertain, and that it is liable to produce violent sweats, prostration hemorrhage, or cyanosis. Moreover, while idiosyncrasy varies considerably, disease also exercises a

modifying influence, cases of erysipelas requiring larger than ordinary doses.

Germain Sée believes acetanilide valuable but difficult to manage from the profound effect upon the blood (*Comptes-Rendus de l'Acad. des Sciences*, April 18, 1887).

"Antifebrin" is a proprietary name, and is controlled by patents. Bought under this name it costs about thirty cents per ounce. But the name "acetanilide" cannot be controlled in any way; and under this name the substance can be obtained for fifteen cents per ounce. As it is one-eighth the price and one-half the dose of antipyrin, it is much more economical in use.—*Elizabeth Stow Brown, M.D.*

ANTIPYRIN AS A HÆMOSTATIC.

Dr. W. M. Powell, in *Daniel's Texas Medical Journal* (the full article is copied in the North Carolina Medical Journal for April, 1888) says: "This drug was first introduced as antipyretic, but it seems to be a more valuable agent in other respects, at least it has given me better results. In fevers I regard it unreliable, because even in moderate doses it depresses the patient to such a degree of prostration that stimulants must necessarily be promptly given. As a local hæmostatic I can only briefly refer to two cases that came under my care recently:

Mrs. S. is the victim of "an old sore leg" of some three years standing, the sore situated on anterior surface, lower third of tibia. Sometime ago, while out in the dark drawing water, she accidentally struck the sore leg against the spout of a stove-kettle, which caused a frightful hemorrhage, filling her shoe full of blood in a very short time. I was sent for in haste, and when I arrived found her nearly exhausted. I applied a 4 per cent. solution of antipyrin, and had the satisfaction of seeing the bleeding quickly checked, no more hemorrhage occurring. A few days later I operated on a boy in his seventh year for phymosis, removing nearly one inch of the prepuce—the hemorrhage of course was profuse. Before removing the clamp forceps I applied a 4 per cent, solution of antipyrin also immediately after removing them. All bleeding was promptly arrested and the mucous membrane and foreskin were neatly brought together with numerous stitches without the least annoyance from further hemorrhage. A simple water dressing completed the operation, and on redressing the following day I do not think I ever saw a cleaner, nicer wound.

Dr. Coruti, in *Independencia Medica*, concludes as follows:

1. Antipyrin is a powerful hæmostatic.

2. It is superior to perchloride of iron, because it leaves the wound perfectly clean.

3. It is superior to ergotine, because it has no toxic effects, if the doses are not too enormous.

4. In most cases it is preferable on account of its double antipyretic and antiseptic action.

5. The hæmostatic action takes place in a very short time.

Antifebrin has been administered repeatedly by myself to nervous, hysterical women, who were continually requesting something to compose them, with the happiest effect, oftentimes supplanting the seemingly necessary hypodermic injections of morphia. A man about 55 years of age, broken in health, who has been in his younger days quite a rue, is a morphine habitué, and now a sufferer from sciatica, has often taken this drug at my suggestion, in lieu of morphia, with the happiest effects, giving him refreshing sleep, and with it the most delightful dreams, producing a priaprism the like of which he has not experienced in many years before. Notwithstanding he has rather a buxom wife, twice in the past three weeks he has suffered the ignominy of a nocturnal emission. I have never before heard or read of acetanilide possessing aphrodisiac properties. To finally summarize:

Quinine	*Antipyrin—Antifebrin.*
Is a tonic of marked effect, and its long-continued use in considerable daily doses, improves malarial anemia.	There is good reason to believe that in long-continued use (four to six weeks) of these drugs or any of the analine products produce a decomposition of the coloring matter of the blood.—*Therapeutic Gazette*, October, 1887.
Quinine is antiseptic.	Antifibrin is not antiseptic, while anntifebrin seems to be.
Antiperiodic.	Not antiperiodic.
Sedative only in doses so large that the stomach may not tolerate enough to produce the effect.	Analgesic.
Produces deafness.	Does not produce deafness.
Is prophylactic against attacks of true malarial poisoning.	Is not prophylactic against malaria.
Reduces temperature in some forms of malarial fevers, but has little effect in typhoid fevers.	Reduces temperature in all cases of fever.
	Remarkable effects in migraine, and substituting morphia almost entirely.

VIBURNUM PRUNIFOLIUM: ITS TRUE PLACE IN SCIENTIFIC MEDICINE.

By R. L. Payne, Jr., M. D., Lexington, N. C.

Read before the North Carolina Medical Society, at Fayetteville, May 8th, 1888.

The rational treatment of disease may be regarded as being still in its infancy.

The medicine of the past has ofttimes been illogical because it has reasoned from a few particulars certain general results must ensue, and has had too few broad, fixed principles to guide it. The medicine of the future demands not only, that no disease be treated without accurate diagnosis, but also, that no remedy be applied to the cure of disease unless it be known to possess certain definite powers of physiological action.

In empirical medicine the treatment of disease, to a great extent tentative, is necessarily a groping in the dark. One remedy is administered with the idea that should this fail another will be tried, and this incertitude as to what remedy would give a desired result has led to the administration of, what some one has graphically styled, "shot-gun prescriptions," the combining in one mixture several remedies of perhaps entirely different classes, each of which has been known to control the given symptoms under certain conditions, and because of the uncertainty as to how any one of the remedies brought about the desired end all the forces of the army are turned loose at once against the enemy with the idea that one or the other will destroy the foe. Little, however, has the thought troubled the mind of the practitioner that though there existed no chemical incompatibility there was a possible physiological antagonism.

In this way ends which should have been attained with all ease have not been reached. The footmen, carrying out the simile of military combat, were overrun by the cavalry, or the cavalry were impeded in the attack by the footmen, who blocked the way and prevented their movement. Each practitioner must recognize the truth of these remarks if he but pause to think.

Only a short time ago the writer was called to consult with a brother practitioner concerning a case of uterine hemorrhage. The doctor had made a very correct diagnosis as to existing conditions, but was prescribing in the same mixture Bromide of Potash and Fld. Ext. Ergot, and wondering why the metrorrhagia was not at all relieved. Of course the remedies did no good, because—though both are excellent remedies for uterine hemorrhage under certain conditions—both con-

trol hemorrhage through entirely different channels, and their physiological actions being diametrically opposed, the one neutralizes the effect of the other unless, perchance, one be given in dose sufficient to more than counterbalance the effect of the other. And this is no isolated example. I might cite prescription after prescription wherein medicines physiologically antagonistic are administered together, and the patient left even in a worse condition than one who has had no medication. On the other hand, if drugs be administered in accordance with a demonstrated physiological action, how much more scientific becomes the practice of our art, and how much more definite our right to expect a good result to accrue.

For example: a patient presents himself to us with heart trouble, and after a careful examination we diagnose a "mitral insufficiency" with all its resulting complications. How shall we medicate this man? Under the methods of empiricism we are directed (Dr. Geo. B. Wood) to prescribe for such a patient digitalis if the heart be not too weak, but to-day rational medicine declares such a state of things demand digitalis because the heart is weak. Why? Because we know that digitalis stimulates the vaso-motor cardiac ganglia; that the movements of the heart are energized; that the blood is driven on with greater force and passive congestions must be overcome; that the walls of the vessels are contracted, and therefore the blood-pressure raised, and as a consequence of the *vis a fronte* the heart's action is made slower and its work accomplished with half the effort. What a victory for rational thereapeutics! To-day we no longer give digitalis with fear and trembling because the heart is weak, but we give it boldly, not only in valvular lesions, but in all those lesions characterized by weak heart and low arterial tension, because we are governed by the broad principles that digitalis is a vaso-motor stimulant, and must always act as a stimulant to the ganglionic nerves whenever, or wherever we may choose to demand it. True, we cannot speak so definitely of the action of all remedies as we do of digitalis, and are yet forced to rely with too great frequency upon the methods of experience, but the day is not far distant when, we have every reason to believe, we shall be able to handle all our remedies in accordance with their physiological actions. Hoping then to add a mite to this growing fund of knowledge, the writer has determined to investigate the virtues of the indigenous medicinal flora of his native State, and in accordance therewith, respectfully submits the following study of the Viburnum Prunifolium, a remedy as yet so little understood that it can scarcely be ranked as having any definite place among our therapeutic resources, and yet, upon close acquaintance, we will find it possessed of such specific power as will make it supply a much felt need in nervo-therapy.

The Viburnum Prunifolium, or black-haw, belongs to the natural order Caprifolaceae, and is of the same class as our well known snow-

ball bush. It is a tree like shrub, distinguished alike by the beauty of its foliage, and the white clustering flowers which add so much to the beauty of our sylvan scenes in early spring. Its habitat is the United States, but it is found chiefly in southern New York and Ohio, and in greatest abundance in all the Southern States, where it grows in dry copses, along fence-rows and in open wood-lands. Its leaves are broadly oval, obtuse at both ends, finely and sharply serrate, shining above and smooth below. Its petioles are naked; cymes sessile, and the fruit an oblong ovoid drupe, turning from red to black in the early autumn months, and much sought after by children, who eat the haws with great relish. No active principle has as yet been isolated, but Herman Van Allen claims the following to be the chemical composition of the viburnum, viz: 1. A brown resinous body of a very bitter taste, from which it was impossible to separate the sugar. 2. A greenish-yellow resin or neutral principle, of a bitter taste, slightly soluble in water, freely so in alcohol, called by Kramer viburnin 3. Valerianic acid. 4. A tannic acid giving greenish-black color with ferric salts. 5. Oxalic acid. 6. Citric acid. 7. Malic acid 8. Sulphates. 9. Chlorides of calcium, magnesium and iron.

The attention of the medical profession was first called to the virtues of black-haw as a remedy by Dr. Phares, of Mississippi, who in 1866 published an article in the Atlanta *Medical and Surgical Journal*, which article reappeared in several of the medical journals of the country, in which he claimed the remedy to be "nervine, antispasmodic, tonic, astringent and diuretic," but recommending it especially for the prevention of abortion. The remedy was soon lost sight of by the mass of the profession, and nothing more was heard of its virtues till in 1876 Dr. Edward Jenks, of Detroit, read a paper before the American Gynæcological Society, endorsing the claims made for the haw by Dr. Phares, extolling its virtues in abortion, the nervous diseases of pregnancy, and declaring it to be "serviceable in all uterine disorders characterized by loss of blood."

This last statement of Dr. Jenks is full of empirical fallacy since it is apparent that as the causes of uterine hemorrhage are various no one remedy, unless it be astringent, and this can only be claimed for haw in a slight degree, could prove useful in all cases. Of this however, more *anon*. Since the publication of Dr. Jenk's article the remedy has been tried by a number of physicians, and isolated reports have at various times appeared in the medical journals, setting forth the value of haw in threatened abortion, menorrhagia, metrorrhagia, dysmenorrhoea, the vomiting of pregnancy, stomatitis materna, &c., &c. The remedy has been described as tonic and sedative, mildly oxytocic and anodyne, but as yet no study has been made of its physiological action, and no accurate rules have been formulated governing its administration. Indeed the *United States Dispensatory* in the last edition (1886)

declares that while haw has been claimed to possess medicinal attributes "its value must be considered apocryphal."

From this mass of conflicting testimony the reader is once more invited to a consideration of the following experiments which have been conducted with great care, and which—though thoroughly conscious of their imperfections—the writer believes, throw much light upon the action of viburnum, and will tend to establish upon a scientific basis a remedy which, from having witnessed many happy results under its administration, he believes to be highly useful.

EXPERIMENT I.

3.15, p. m. Injected hypodermically a small frog with 20 minims Fld. Ext. viburnum prunifolium.

3.20. Complete paralysis.

3.25. Frog is dead.

EXPERIMENT II.

1.39, p. m. A small active frog was injected with 15 m. Fld. Ext. Blk. Haw.

1.40. Frog seems dull; allows limbs to remain quiet in whatever position placed.

1.50. Reflex motion under mechanical irritation is lost; slight fibrillary twitching of scattered muscles; slight exhibition of feeling when acetic acid is applied to web of hind foot.

1.55. Snipping chest wall carefully away, the heart is seen to beat feebly 7 times per minute.

2.05. Heart beats feebly 7 times per minute; slight feeling, both of mechanical and chemical irritation, but no motor impulse sent to withdraw hind legs from source of irritation; slight movement of arms and fibrillary twitching of scattered muscles when acetic acid is applied.

2.10. Active contractions of muscles ensue upon application of the electric current; the pupils are contracted so as to be almost unapparent.

2.30. Heart still beats very feebly, almost imperceptibly. 7 per minute isolated sciatic nerve, ligated all the other tissues of the limb and then divided all the parts below the ligature except the nerve. Electricity applied, one pole to body and one to severed extremity causes active movements in severed parts. Poles applied to remote parts produce like effect.

2.50 Heart beats feebly 17 per minute.

EXPERIMENT III.

6.40, p. m. A very large, healthy frog was injected with 20 m. Fld. Ext. Blk. Haw,

7. No perceptible effect; frog moves actively; injected 20 m. of extract.

7.20. No effect; injected 25 m. of extract.

8.05. Frog has become quiescent, tends to extend the limbs, and there is more or less rigidity.

8.20. Marked paresis, especially in hind legs; sensbility to mechanical irritation is almost lost; sensibility to chemical irritation remains.

8.30. Complete loss of voluntary motion. Some twitching of muscles when acetic acid is applied; pupils are contracted.

9. Slight restoration of motor power, (was here called away and had to abandon experiment.

EXPERIMENT IV.

9.20, p. m. Injected 20 m. solution Ext. viburnum* into the peritoneum of a medium sized frog.

6.27. Decided paresis of posterion extremities.

9.35. Injected 10 m. of same solution; frog gasps; strikes sides of head with front feet; retches and vomits.

9.45. Paresis of fore legs; complete paralysis of hind legs.

9.55. Complete paralysis; insensibility to mechanical irritation; slight responsive twitching of muscles under chemical irritation.

10.15. Frog is dead.

EXPERIMENT V.

6.50, p. m. Injected a large healthy frog with 25 m. solution of the solid extract.

10. Frog gasps, retches and vomits.

10.05. Marked paresis of hind legs; moves feebly when foot is pinched; pupils contracted.

10.10. Complete paralysis; insensibility to mechanical irritation; sensible to chemical irritation.

10.30. Paralysis continues; snipping chest wall away beats feebly 12 per minute.

10.50. Heart beats very feebly 6 per minute.

EXPERIMENT VI.

10, p. m. A medium sized frog was injected with 20 m. Sol. Ext. viburnum.

10.05. Frog vomits freely.

10.10. Pupils contracted.

10.15. Decided paresis, most marked in hind leds.

10.25. Complete paralysis.

10.35. Complete insensibility; isolated sciatic nerve, ligated all other tissues of the leg, and divided all the parts below the ligature except the nerve. Applying electricity, both poles to spinal cord, all parts of frog move actively except severed portion; no reflex movement; on striking muscles no contractions occur; on pinching nerve no con-

*Fearing lest the alcohol contained in the Fld. Ext. viburnum would mar the result of the study, the writer used in a number of these experiments the solid Ext. Black haw of Parke, Davis & Co., made sufficiently fluid by the addition of water to flow through a large hypodermic needle. It will be noted however, that the effect of this solution is identical with that of the Fld. Ext. haw.

tractions occur in parts below; electricity applied, one pole to spine and one to severed parts, active contractions result in severed limb.

EXPERIMENT VII.

5.10. Tacked a medium sized frog on a board and snipped the chest wall, and a portion of the pericardial sac away.

5.25. Counted and found heart beating 65 per minute; injected 15 m. Sol. Ext. viburnum.

5.50. Heart beats 56 per minute.

6. Heart beats 53 per minute.

6.15. Heart beats very feebly 47 per minute.

6.30. Heart beats very feebly 48 per minute.

7.30. Heart pulsates with poor rythm and extreme feebleness 36 per minute.

8.10. Heart beats 33 per minute.

9. Heart contracts feebly 28 per minute.

9.28. Heart beats 22 per minute; contraction are so feeble as to be almost imperceptible. (Forced to abandon experiment.)

EXPERIMENT VIII

5.07, p. m. A very large frog was injected with 25 m. Solut. Ext. viburnum.

5.15. Frog gasps, retches and vomits several times.

6.15. Slight paresis with incoordination of muscular movement; free urination several times; injected 25 m. of same solution.

6.30. No increased effect.

6.45. injected 25 m. of same solution.

6.55. Very marked paresis, most marked in hind legs; sensibility impaired.

7. Paralysis of hind legs complete, condition of fore legs almost as bad.

7.10. Isolated sciatic nerve, ligated all other tissues of limb and divided all the parts below the ligature except the nerve; frog exhibits no evidence of feeling during the operation, but acetic acid being applied feeble reflex movements occur; on striking muscles no contractions occur; electricity being applied, one pole to each arm, contractions occur in all parts below, including severed portions; applying one pole to arm and one to severed parts more active contractions occur in the divided limb.

7.20. One pole of battery applied to arm and one to divided tissues, no contractions occur, nerve no longer transmits the electric current; current applied to sound portions only slight contractions occur; both poles applied to severed parts slight local contractions occur; opening thorax heart is seen beating very feebly 10 per minute.

7.40. Heart beats very imperfectly 10 per minute; all rythm is lost.

EXPERIMENT IX.

3.40, p. m. A very large active frog fastened on the back on a board, the chest wall and pericardial sac snipped away, and after waiting 30 minutes for recovery from shock the heart was found to be beating 60 per minute.

4.10. Injected hypodermically minims 45 of Solut. Ext. viburnum.

4.45. Heart beats 52 per minute; no loss of motor power; injected 25 minims of solution.

5.40. Complete paralysis of the extremities; heart beats very feebly 40 per minute.

6.20. Paralysis more marked; no reflex is excited when acetic acid is applied to web of foot; heart beats 40 per minute, and the contractions are so feeble that the walls of the ventricles remain blue during the systole.

7. Heart beats with growing feebleness 40 per minute.

8. Debility of heart increases; contractions number 28 per minute.

9. Heart's rythm is impaired and feeble contractions occur 23 per minute.

9.30. Heart contracts feebly 20 per minute.

EXPERIMENT X.

9, p. m. Injected a healthy rabbit with 2 drachms Fld. Ext. Blk. haw.

10. No apparent effect; injected 2 drachms of the extract.

10.10. The ears appear conjested; all motor power in hind legs is lost and same thing soon occurs in arms; on pinching foot slight movements occur in extremities; the heart beats are so rapid they cannot be counted; respirations 80 per minute.

10.30. The capillaries of the ear can hardly be seen; the heart's action is very rapid and feeble, and complete loss of motor power persists.

12. Rabbit is dead.

Post Mortem: Lungs are anaemic; heart, right ventricle is distended with soft coagula; left ventricle also contains some soft clots.

EXPERIMENT XI.

3.20, p. m. A large, healthy rabbit was injected with 2 drs. Fld. Ext. Blk. haw.

3.50. Capillary vessels of the ears are much enlarged; no other appearant effect.

4. Injected 1 dr. of the extract.

4.15. Motor power impaired; in moving the hind legs are dragged feebly along; injected ½ dr. of the extract.

4.25. Great impairment of motor power and coordinate movement is seriously interfered with; moves feebly if foot is pinched; sensibility and consciousness are unimpaired.

5. Entire loss of motor power; sensibility unimpaired; respirations 44 per minute; heart beats feebly and so rapidly it cannot be counted.

7.30. No gain in motor power.

9.30. Can begin to move feebly over the floor, dragging the hind legs as though the back were broken.

10.30. Motor power is almost regained.

6, a. m. Rabbit seems entirely recovered.

EXPERIMENT XII.

3.30, p. m. Injected a large healthy rabbit with 3 drs. Fld. Ext. Blk. haw.

3.45. Animal seems dull, inclines to doze and is very reluctant to move.

4.30. No other change; injected 1 dr. of the extract.

5. Some loss of coordinating power; bloodvessels of ears are congested so that vessels before unapparent now show very distinctly; injected 25 m. of the extract.

5.15. Marked paresis especially in hind legs; animal seems uneasy; respirations 33 per minute; heart beats are so rapid they cannot be counted; injected 25 m. of the extract.

5.40. Can now only move by feeble dragging motion; instead of crouching lies prone; hearts action is very rapid and feeble; respirations are 28 per minute. Even the largest vessels of the ear are now almost unapparant, and the surface temperature is much reduced. On squeezing foot evidence of pain is elicited.

6. Almost complete loss of motor power; consciousness unimpaired.

8. No improvement in rabbit's condition.

8. Considerable improvement in motor power.

10. Animal can move feebly about the room, but still with great effort.

8, a. m. Animal is dead.

EXPERIMENT XIII.

12 40, p. m. Injected a healthy rabbit with 3 drs. Fld. Ext. Blk. haw.

1. Rabbit seems dull and instead of struggling as before inclines to remain quiet in whatever position placed.

1.15. Rabbit shows unmistakable paresis; the vessels of the ears are turgid with blood.

1.25. Heart's action is very irregular, beating a few slow beats, then very rapidly, and again, intermitting, injected 1½ drs. of the extract.

2.25. Decided incoordination of muscular movement with increasing respais.

2.50. Almost complete paralysis, the animal only being able to move a little by violent, jerky effort; loss of motor power most marked in hind legs; rythm of heart is now good, but action is very feeble, and so rapid that the beats cannot be counted, surface temperature apparently lowered.

8, a. m. Rabbit seems perfectly recovered.

EXPERIMENT XIV.

8, a. m. Injected peritoneum of a rabbit with 3 drs. Fld. Ext. Blk. Haw.

8.20. No perceptible effect; injected 2 drs. of the extract.

9.50. No effect on motion; heart's rythm is somewhat disturbed, and pulsations are increased to such rapidity they cannot be counted; injected 2 drs. of extract.

11.30. Rabbit is completely paralyzed in hind legs and is almost as bad in arms. Sensibility to pain and consciousness are not at all impaired; heart's action is rythmical, but too rapid to be counted.

12.30. Paralysis is less marked.

1.45. Rabbit can move freely.

EXPERIMENT XV.

6.05, p. m. Injected peritoneum of a rabbit with 3 drs. Fld. Ext. Viburnum; respiration 80 per minute; heart beats 80 per minute.

7.30. No effect; injected 3 drs. of extract.

7.50. Slight paresis, most marked in hind legs; vessels of ears dilated.

8. Animal lies on the side; if frightened moves with great difficulty, dragging hind legs; action of heart is so rapid it cannot be counted; pupils unaffected; respiration 80 per minute.

8.20. Complete paralysis; vessels of ears are now very small.

9. No change; perfect consciousness; surface is cold; covered rabbit warmly and left it.

8, a. m. Rabbit has motor power perfectly restored; heart's action is still very rapid and feeble.

EXPERIMENT XVI.

6, p. m. Selected a healthy rabbit; heart beats 38 per minute; respirations 112 per minute; chloroformed the animal; isolated sciatic nerve; ligated all the tissues of the limb (except the nerve,) and divided the parts below the ligature so that the leg was connected with the body by the nerve alone.

7. Animal having fully recovered from the anaesthetic the peritoneum was injected with 5 drs. Fld. Ext. Viburnum.

7.30. No motor power in sound leg; vessels of ears are congested; heart beats too rapidly to be counted; electricity applied to spinal cord (where skin has been clipped away,) no movements occur in divided muscles; one pole applied over spinal cord and one to soft tissues of divided parts contractions occur in the separated muscles; poles applied to remote parts produce no effect on severed parts; pinching nerve contractions occur in parts below.

7.50. Rabbit is dead; electro-motor contractilily is preserved.

Post Mortem: Lungs are charged with blood; heart, left ventricle contains soft clots; right ventricle contains soft clots, and is much distended.

EXPERIMENT XVII.

10.30. The peritoneum of a rabbit, somewhat weakened by abstinence from food, was injected with 5 drs. Fld. Ext. Blk. Haw.

10.40. Bloodvessels of ears are dilated; all motor power is lost; heart beats very feebly, and so rapidly it cannot be counted; breathes spasmodically 60 per minute. Slight opisthotonos, fibrillary twitching of scattered muscles and oscillation of eyeballs.

10.50. Opisthotonos has disappeared; no fibrillary twitching except in the muscles which open and close the jaws—these muscles were in constant action for several minutes, and the teeth could be heard clashing together for some distance; breathes 40 per minute; heart beats very rapidly.

11.15. Absolute loss of motor power; no appearance of sensibility or consciousness; isolated sciatic nerve, ligated all other tissues of the limb, and divided below the ligature all the tissues, except the nerve; applied electricity, one pole to separated soft parts and one along the spine, when active motions occur in the severed parts; on pinching nerve contractions occur in parts below; bloodvessels of the ears are no longer apparent; no reflex when cornea is touched; pulsations of heart cannot be counted, it is very feeble and all rythm is lost.

12, m. No sign of life in rabbit, except it breathes 24 per minute; no movement of heart can be detected.

12.15. Animal is dead.

Post Mortem; Heart, right ventricle and venæ cavæ are distended with soft clots and thick black blood; left ventricle also contains some soft coagula; lungs are surcharged with fluid blood.

EXPERIMENT XVIII.

10.40, p. m. A healthy rabbit; heart beats 100; breathes 80 per minute; injected 2 drs. Ext. Viburnum.

10.50. No apparent effect.

11.50. No apparent effect; injected 5 drs. of the extract into the peritoneum.

11.60. Capillaries of the ear are distended; heart's action is exceedingly rapid and feeble; breathes 64 per minute; motor power is entirely lost; no reflex when cornea is touched.

12.20, a. m. Heart's action is too rapid to allow of the beats being counted; breathes 64 per minute; no appearance of consciousness or sense of pain; vessels of ears are surcharged with blood, and reflexes are still abolished.

1.10. Breathes regularly 36 per minute; heart beats very rapidly and rabbit is extremely feeble.

1.40. Rabbit is dead.

Post Mortem: Heart, right ventricle distended with semi-fluid blood and soft coagula; left ventricle also contains some soft clots; the large veins are also distended with soft coagula; the lungs are congested.

EXPERIMENT XIX.

4.25, p. m. The peritoneum of a large healthy rabbit was injected with 5 drs. Fld. Ext. Blk. Haw ; cutting off the top of the ear bright arterial blood is seen to spirt freely from the divided vessels ; controlled hemorrhage by a ligature.

4.35. Heart beats so rapidly it cannot be counted ; breathes 64 per minute ; motor power apparently lost.

4.53. Complete loss of motor power except in the muscles of the jaws which are kept in constant motion, (the clashing of the teeth can be heard for a considerable distance, and the convulsive chewing is violent) ; no reflex when cornea is touched ; slight opisthotonos ; cutting away tip of unwounded ear only a few drops of black blood ooze out very slowly ; not one fourth the amount that came from ear cut before animal came under the influence of the medicament.

5.25. Pulsations of heart can no longer be felt ; breathing is very rapid and feeble ; convulsive chewing still persists, but no other evidence of motor power can be elicited.

6.10. Breathing and pulse unchanged ; convulsive motion of jaws still goes on ; some slight voluntary motion of extremities are now made ; consciousness is unimpaired.

7.20. Movements of jaws have ceased ; motor power is increasing a little. (Experiment unavoidably abandoned.)

EXPERIMENT XX.

2, p. m. A large and apparently healthy rabbit was injected with 5 drs. Fld. Ext. Blk. Haw.

2.15. No change except capillary vessels of ears are dilated.

2.45. Decided incoordination of muscular movement, and considerable loss of motor power ; injected 1 dr. of the extract.

3. Complete lapse of motor power, except under violent pain some slight but ineffectual efforts are made to withdraw from the source of irritation ; capillaries of the ears are smaller ; electricity applied along spine causes feeble contractions in parts below ; no loss of consciousness or sensibility ; heart's action is too rapid to be counted.

3.15. Isolated sciatic nerve, ligated all other tissues of the limb, and divided below the ligature all the tissues except the nerve. During the operation the animal suffered intensely, crying out as if in acute pain, but was unable to move from under the knife. On striking muscles no contractions occur ; applying electricity to spinal cord slight contractions occur in parts below ; on pinching nerve very slight twitching occurs in severed muscles ; on applying electricity, one pole to spine and one to severed tissues, more active contractions occur in the divided tissues. (Having completed experiment animal was killed to end its further suffering).

EXPERIMENT XXI.

3, p. m. Injected the peritoneum of a rabbit with 6 drs. Fld. Ext. Black Haw.

4. Impaired coordination with some paresis.

5. Marked paresis; only slight progressive motion can be made by jerky movement, dragging extremities, as if back were broken.

6. Complete loss of motion; sensibility and consciousness unimpaired.

8. No increase in motor power; paralysis most marked in hind legs.

8, a. m. Rabbit seems perfectly recovered.

EXPERIMENT XXII.

A rabbit was fastened on the Czermak Holder, the carotid artery exposed, tied above, and being opened below a glass tub is inserted and tied firmly in the vessel. This tube was now connected with the manometer, and immediately the mercury rose 5 inches. A hypodermic syringe full of the solution of the solid extract viburnum used in the experiments on cold-blooded animals was now injected into the jugular vein of the rabbit, and almost immediately the blood-pressure began to fall very rapidly, and in a few moments the heart's action was so feeble as to exert no influence on the mercury whatever.

EXPERIMENT XXIII.

Fastened a rabbit on the Czermak Holder, exposed the carotid artery, tied it above and opening it below ligature, a glass tube was inserted and tied firmly in the vessel. The tube was now connected with the kymographion and the oscillation of the mercury in the tube under the normal blood-pressure noted. (Fig. 1, a. a). A drachm of the solution of the solid extract was now injected into the right jugular vein (Fig. 1, b. p. 163,) and immediately the blood-pressure began falling (see tracing Fig. 1,) and the curvature of pulsation growing less and less distinct till all action of the heart ceased (Fig. 1, c.,) the respiration continuing for some moments thereafter.

EXPERIMENT XXIV.

A healthy rabbit was fastened on the Czermak Holder, and the carotid artery exposed and tied. Opening the artery below the ligature a glass tube was inserted and secured. The tube was then connected with the kymographion and the normal blood-pressure noted (Fig. 2, tracing, a. to a.) About a drachm of the solution of the solid extract of haw was now injected into the right jugular vein, (Fig. 2, b. The perpendicular line being caused by the struggles of the animal.) Almost immediately the tracing indicated a fall of the blood-pressure, and a diminution in the size of the curvature of pulsation. The perpendicular lines (Fig. 2, c. c. c.) indicate a temporary rise of the blood-

For Figure 1, see page 163.
For Figure 2, see page 163.

FIGURE 1.

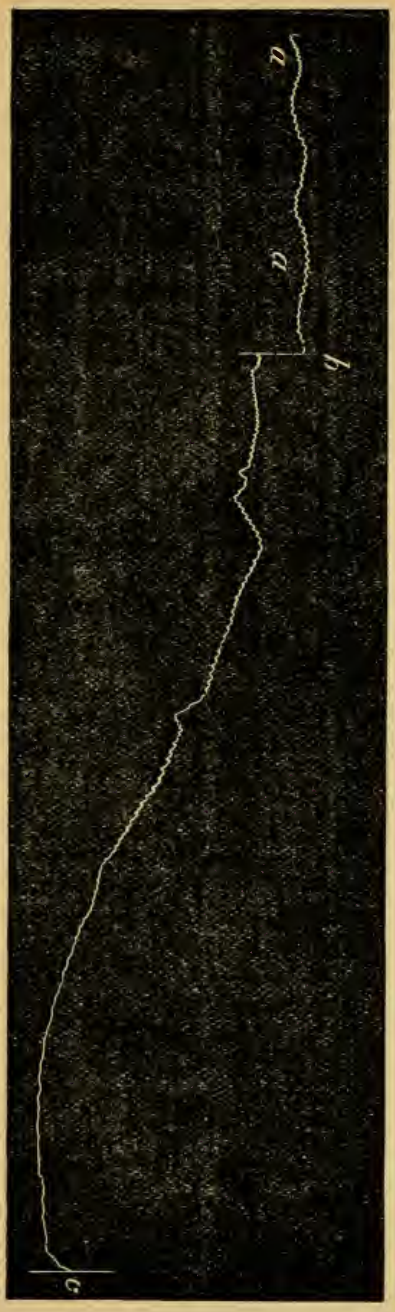


FIGURE 2.

pressure caused by the struggles of the animal. At C_2 a decided fall in the blood-pressure occurs. Convulsions coming on (Fig 2, d. d. d.) a temporary rise in the pressure occurs as a result of the struggles of the rabbit till, convulsions ceasing, a rapid fall in the blood-pressure again is noted, (Fig. 2, e. e.) increased a little from time to time as the animal is thrown into slight convulsive action. At the same time the curvature of pulsation indicates growing debility of the heart till a decided fall in the pressure takes place, (Fig. 2 f.) and very quickly the heart ceases to beat. Respiration continues after pulsations of heart can not be seen.

GENERAL SUMMARY OF THE PHYSIOLOOICAL EFFECTS OF BLACK HAW.

1st—EFFECT ON SENSIBILITY.

Black Haw exercises no influence on consciousness or sensibility to painful impressions, so far as these experiments indicate. In experiment 8, after all sense of pain under mechanical irritation had disappeared, under chemical irritation feeble reflex movements were excited, and in experiments 6, 17 and 18, where extremely large doses of Haw were administered and all motor power, both reflex and voluntary, was completely lost there was, to all appearance, no consciousness or sensibility to pain. Whether this was due to an absolute loss of feeling or simply to the animal's inability to make any manifest action the writer is in doubt, but inclines to the latter opinion.

2nd—EFFECTS ON MOTION.

The most constant and marked effect of viburnum is upon motion. After its administration there follows paresis, paralysis of voluntary motion, and finally complete loss of all reflex power; the extent of this loss of power being governed entirely by the dose administered.

A first effect is paresis which makes its appearance not suddenly, but as a gradually growing weakness, then there follows marked incoordination of muscular movement, and whatever motion is attempted is of a jerky, spasmodic character; then, the effect being pushed, there occurs almost suddenly complete loss of voluntary motion, and later, in fatal cases of poisoning from this drug, all reflex power is lost sometimes before cessation of the heart's action or of the respiration. In cold-blooded animals the pupil contracts under the influence of haw, but in warm-blooded animals no effect on the pupil was noticeable. Muscular irritability is lost after lethal doses of Black Haw, but the ability of the nerves to transmit the electric current is lost before muscular contractility.

NOTE—In studying Fig. 2 it must be remembered that the tracing was taken on paper wrapped around the revolving cylinder of the Kymograph, and therefore will be best studied by rolling it around some object till the severed ends of the tracings join.

3d—EFFECTS ON CENTRAL NERVOUS SYSTEM.

The effect of viburnum on motion, as previously described, must be due to the action of the remedy on the motor centres of the spinal cord.

The fact that incoordinate movement precedes complete loss of motor power argues that haw has some selective action on the posterior columns of the cord. The effect of haw upon the cord seems to be to hold in abeyance its motory functions rather than to destroy. Since, after all motor power is lost following its administration, electricity applied to the cord causes motion in parts below, and applied directly to the nerve trunks causes more active movement.

The peculiar spasmodic chewing observed in experiments 17 and 18, would indicate a specific action on the seventh pair of nerves, which action is difficult of explanation.

The functions of the cerebrum as manifested in the persistence of consciousness, and the sense of pain show that viburnum exerts, at least, no primary action upon the brain.

4TH—EFFECTS ON THE CIRCULATORY SYSTEM.

A constant and first effect of Black Haw is to paralyze the vaso-motor nerves with consequent dilation of the blood-vessels—the capillaries of the rabbit's ears become distended with blood. At the same time in warm-blooded animals the action of the heart becomes very rapid and feeble, and later on the vessels of the periphery become so small that even large vessels in the ear of the rabbit are almost unapparent to the eye. Coincidently the surface temperature falls very low. The diminution in the size of the vessels seems attributable to diminished volume in the circulating fluid, and not to contraction of the muscular walls of the vessels through increased vigor. In cold-blooded animals the action of haw on the heart differs somewhat from its effects in warm-blooded animals, in that instead of growing more rapid the heart becomes gradually slower and slower, but the similarity of action is marked in the disturbed rythm, and constantly increasing feebleness of the heart's pulsations.

Following the administration of the Haw there results a lowering of the blood-pressure. In experiment No. 19 the blood flowed freely from a wound of the ear before the animal came under the influence of the medicament, but when fully under the viburnum a like wound being inflicted upon the sound ear only a few drops of black blood slowly exuded.

In experiment No. 22 it is seen that the normal action of the rabbit's heart raises the column of mercury in the tube of the manometer five inches, but when the animal is fully under the influence of the medicine the pressure falls so low as to exert no influence on the mercury, and in experiments Nos. 23 and 24 a comparison of the tracings of the kymograph, (Figs. 1 and 2,) when connected with the normal heart,

and the heart after the animal came under the influence of the viburnum, show conclusively the fall of the blood-pressure under the action of the drug. In both warm and cold-blooded animals after lethal doses of haw paralysis of the heart precedes cessation of the respiration.

Post mortem investigation shows the right ventricle and venæ cavæ distended with soft coagula, and the left ventricle also contains some soft clots; the lungs are congested, and all the post mortem indications are that the heart is arrested in diastole from paralysis of its vaso-motor ganglia.

GENERAL CONCLUSIONS.

From the foregoing summary it seems evident that viburnum paralyzes both the centres of voluntary motion and the reflex functions of the spinal cord.

THERAPEUTICS.

From the knowledge of the physiological action of haw which we have deduced from the foregoing experiments we naturally conclude that the Viburnum Prunifolium is destined to become an approved remedy in all those diseases characterized by increased excitability of the motor centers. An especial recommendation for viburnum in these cases is that it paralyzes the motor centers without impairing sensation or consiousness.

In the convulsions of hysteria, whether involuntary or artificially induced, in hystero-epilepsy, in petit mal, in the true epileplic seizure and in various localized spasmodic troubles we may expect much good from the haw in the prevention of recurring paroxysms. The large dose required to produce the desired effect may militate against the popularity of the remedy, but this difficulty is more than counterbalanced by the fact that haw is the only agent capable of producing such results which—no matter how long it may be administered—will not at all interfere with the digestive process.

In cases of paralysis agitans the writer has witnessed marked diminution in the tremor, and has added much to the comfort of the patient by the use of medium doses of Black Haw.

In idiopathic dysmenorrhœa, (?) by which term I prefer to designate all painful menstruation unaccompanied by organic lesion, haw is exceedingly useful. This form of dysmenorrhœa is most frequent in subjects of the hysterical temperament, or in those women in whom either, by reason of faulty development, or the neglect of hygienic laws, the nervous system has become predominant. Idiopathic dysmenorrhœa is characterized not only by the absence of organic defect, but also by acuteness of pain as well as by irregularity, the suffering being much worse during some periods than in others, and by some teachers is designated ovarian, by others spasmodic dysmenorrhœa. In this form of dysmenorrhœa the viburnum will prove of the greatest utility if it be administered for a few days prior

to and during the time of the menstrual period, and even in cases of painful menstruation due to obstruction, while we could not expect this agent to prove curative it will certainly lessen the violence and frequency of the colicy, bearing down pains, and is open to none of the objections which apply to the use of opiates.

In this connection it may not be out of place to refer to the statement of Dr. Edward Jenks, who declares that haw is only useful in those cases of dysmenorrhœa associated with menorrhagia. This statement, in the writer's experience, is not absolutely correct, but there certainly are cases of dysmenorrhœa associated with menorrhagia, in which ovarian influences play a potent part as etiological factors in the production, both of the increased and painful flow, that are much benefitted by the Black Haw. That there is a form of menorrhagia produced by ovarian influences is attested by all authorities. Ovarian irritation is common at the age of puberty; is frequent in sterile marriages; is often caused by sexual excesses, and is common among prostitutes or where great disparity exists between the age of husband and wife, and lastly, like the final flickerings of the candle burned into the socket, ovarian irritation is one of the most constant phenomena of the change of life, and wherever found associated with menorrhagia we can safely regard it as one of the causes of the increased flow, and may confidently expect to do much for its relief by the exhibition of the viburnum. On the other hand in menorrhagia due to congestion of the portal circulation; subinvolution of the uterus; metritis, lacerations and erosions of the cervix; and where fibroid tumors exist haw not only exerts no beneficial effect, but its administration may prove positively injurious.

In the prevention of abortion haw has proven itself preminently useful, and with a clear knowledge of its physiological action it stands upon a firm basis before the profession as the very best agent known to physicians for the purpose named.

Labor, whether at full term or occuring prematurely, is nothing more or less than a reflex action, and haw, from its power to lower the irritability of the motor centers through all grades of debility from the slightest paresis to the most profound paralysis, commends itself as the remedy above all others in cases of threatened abortion.

Of course, if the ovum is detached from its uterine connection, in part or entirely, we could not expect, nor would we desire its retention, but in those cases the result of emtional causes or other causes acting through a nervous agency, where there are simple expulsive pains without much hemorrhage, even though there be considerable dilatation of the os uteri, the viburnum will almost surely prevent abortion if it be faithfully pushed.

Viburnum has proven of the greatest use in the writer's hands in those cases where women have contracted the habit of aborting. In these cases the fluid extract in drachm doses or preferably a decoction, prepared from the fresh bark of the root in half ounce doses should be administered three or four times daily from the time pregnancy is suspected till several weeks have elapsed after the usual period of aborting, and after using the remedy in this way in a number of cases where the habit seemed intractable and had resisted all other known remedies the writer can truthfully say he has *never yet* failed to bring the woman to full term.

One word of caution is neccessary as to the use of haw in threatened abortion. In cases characterized by much hemorrhage the vitality of the embryo is probably lost, and it is hardly worth while to try to save it, and in these cases haw may prove a dangerous remedy. The bleeding is caused by a detachment of the placenta; the only means of checking the hemorrhage is the closing of the torn uterine sinuses by making the uterus contract, and haw by its paralyzant action may effectually prevent this contraction, and thus add greatly to the danger of death from hemorrhage.

A large number of pregnant women suffer with what the writer is in the habit of styling irritable uterus. At any time during pregnancy, but especially during the later months the womb may become fretful under its burden, and then occur frequent slight contraction which annoy the woman and keep up tenderness and a sore feeling in the lower part of the abdomen. These cases are speedily relieved by moderate doses of viburnum. In the false pains which sometimes harass a woman for days before the outset of labor, and in the after-pains of confinement haw quickly gives relief.

The preparations of haw which the writer has found most useful in practice are the solid extract in doses of 5 to 10 grains; the fluid extract in doses varying from a drachm to half an ounce, or what is far preferable a decoction prepared as follows: Four ounces of the bark of the fresh root are added to three pints of cold water in a porcelain vessel, and the whole boiled gently till only a quart of fluid remains. The fluid portion is now strained, and the juices remaining in the bark are extracted under pressure and added to the decoction. Of this the dose is one half to one ounce, repeated in accordance with the demands of the case and the resulting effect.

LITERATURE OF VIBURNUM PRUNIFOLIUM.

The literature of viburnum is as yet very scant. So far as possible, and we think the ground has been very thoroughly canvassed, we have collected all that is now extant on the subject, and give references below that all who may desire to study the existing literature may know where to refer.

The articles are entirely clinical, being reports scattered through the various medical journals during several years, and refer to haw as a remedy in abortion, dysmenorrhœa and menorrhagia. In the main these reports are unsatisfactory because they refer to the remedy as good in dysmenorrhœa menorrhagia, &c., without defining specifically what were the exact etiological factors at work in the cases in which the remedy was used.

Articles on the subject have appeared as follows, viz:

Boston Medical and Surgical Journal, Oct. 10th, 1867—By Dr. Phares.

Transactions American Gynæcological Society, 1876—By Dr. Edward Jenks.

New Preparations, pg. 21, 1887—By Dr. S. S. Lawrence.

New Preparations, pg. 47, 1878—Excerpt from Electic Medical Journal.

New Preparations, pg. 61, 1878—By Dr. J. M. Goss.

Virginia Medical Monthly, pg. 294, 1878—By Dr. Wm. Lewis Dinkins.

Maryland Medical Journal, Feb. 1878—By Dr. B. C. Brown.

New Preparations, 1878, pg. 23—Excerpt.

Southern Medical Record, pg. 47, 1879—By Dr. D. B. Nisbet.

New Preparations, pg. 137, 1879—By Dr. A. D. Rockwell.

Southern Medical Record, 1879—Extract.

New Preparations, pg. 194, 1879—By H. C. Bullard.

New Preparations, pg. 207, 1879—By Dr. I. C. McKoy.

Louisville Medical News, 1879—By Dr. L. A. East.

North Carolina Medical Journal, pg. 367, 1879—By Dr. Jas. B. Hughes.

Therapeutic Gazette, pg. 71, 1880—By Dr. C. R. Cullen.

Therapeutic Gazette, pg. 95, 1880—By Dr. A. S. Everett.

Therapeutic Gazette, pg. 130, 1880—By Dr. R. I. Lemont.

Therapeutic Gazette, pg. 209, 1881—By Dr. J. K. Milbourne.

Therapeutic Gazetee, pg. 249, 1881—By Dr. W. L. Coleman.

Peoria Medical Monthly, 1881.

Therapeutic Gazette, pg. 439, 1881—By Dr. Robt. Boal.

Southern Medical Record, pg. 41, 1882—By Dr. T. F. Houston.

Obstetric Gazette, 1882—By W. O. E. Herrick.

THE USE OF THE DILATOR AND INTRA-UTERINE STEM IN THE TREATMENT OF DYSMENORRHŒA AND STERILITY (RAPID DILATATION).

By Augustin H. Goelet, M.D., of New York.

(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

It is the purpose of this paper to show that dilatation, if maintained, is a safe, satisfactory and reliable substitute for all the cutting operations upon the cervix heretofore used to overcome stenosis, obstruction and flexion of the cervical canal, and at the same time to show that it is entirely free from the dangers and objections urged against these operations. But do not confound this operation with divulsion, which is to be classed in the same category with division and discission, and which with them should be denounced as barbarous mutilation.

Perhaps, for a better understanding of the terms, it will be well to say here that by division is meant Sims's posterior incision of the whole structure of the cervix up to the vaginal junction, which includes the tissues at the internal os to a considerable extent, and sometimes the fibers anteriorly. Discission is deep incision of the whole cervical canal in several directions, including both the external and internal os. And by divulsion we mean forcible rupture of the fibers of the cervix, usually with scarification of the constricting fibers in every direction, and a constant tearing and lacerating of the tissues, the latter being a favorite with a prominent specialist in New York, who uses an instrument which he says must be capable of exerting a pressure of two hundred pounds. Should we consider this a justifiable procedure? It is plainly the surgeon's duty always to imitate or restore nature, but never to deface her; nor is he justified in submitting his patient to any more risk than is actually necessary to accomplish the result aimed at.

These operations are extremely apt to be followed by disastrous consequences, either immediate or secondary, and, being unnecessary should be stricken from all works on diseases of women. It is really astonishing that they still have advocates, who appear to be blind to their dangers and failures, when there is a better, safer more natural and perfectly satisfactory operation in dilatation. If

immediate and permanent relief follows properly performed dilatation, where exists the necessity, or even the excuse, for these more dangerous methods? When such a rash and unjustifiable procedure as divulsion is described synonymously with dilatation by most writers upon this subject, it is not strange that we find some who object to rapid dilatation in any form. They say "we fear the dilator; it is a dangerous instrument." I grant it is, in careless hands. So is the razor; but it is a necessity. Should we condemn an instrument because some have gone too far and abused it?

If the dilator is used as I have advised and urged, with extreme care and with just enough force to accomplish a moderate amount of dilatation, the process will be only an imitation of nature, and entirely devoid of danger. It was intended that the cervical canal should dilate. It is what takes place in labor; it is what takes place in abortion; and, although to a lesser degree, the same thing occurs at every menstrual epoch. This mild dilatation, however, would be insufficient in many cases, indeed in most cases, unless something were done to maintain it. For this purpose I have devised this little instrument, which I call an intra-uterine stem:

Fig. 1.

It is only two inches long, while the virgin uterus is two inches and a half, and is perforated through its center with a considerable-sized channel, which allows free drainage from the uterine cavity while it is in position. It terminates in a cup-shaped shoulder which prevents further entrance, and, by fitting the cervix nicely, the suction produced aids in its retention.

This is introduced after the dilatation is complete, and retained in position by a cotton tampon. It is retained usually about a week, the patient meanwhile being confined to bed. There are three sizes, 10, 12 and 14 of the English scale. The first size is used for the first twenty-four or forty-eight hours, then it is replaced by No. 12, and again, in a day or two, there will be enough relaxation to allow the introduction of No. 14.

The advantage and importance—nay, the actual necessity—for the

use of the stem in the treatment of these cases is evident to any one who will give the matter serious thought. The resilience of rubber (the most resilient of all substances) may be overcome by constant stretching. But it would be a tedious process to overcome the resilience of a piece of rubber tubing at a given point by repeated interrupted stretchings, as compared with a lesser force constantly applied. As an illustration, one end of this little piece of rubber tubing has been stretched over a hard substance which is larger than its caliber, and has been left there until it has lost its resilience in part and assumed the size and shape of the body over which it has been stretched, This is permanent because its power of resistance has been overcome by a force constantly applied.

The stem placed in the cervix after it has been dilated prevents recontraction by exerting a constant pressure upon the constricting fibers. During the first twenty-four or forty-eight hours the stem will be grasped firmly by the cervix; but later relaxation occurs, and a larger size can be introduced, which could not have been done at first without carrying the dilatation further. Can there now be any doubt of the necessity for the stem?

Dr. John Ball, of Brooklyn, ten years ago, in a paper read before the Medical Society of the State of New York, recognized the necessity of a stem to maintain the result gained by the dilator. But his stem was a rude affair, impracticable and dangerous, because it allowed forces operating outside of the body to act directly upon the uterus; besides, it plugged the canal and prevented drainage; and it was abandoned. Another stem has been devised, which is two inches and a half long, curved and grooved on the side for drainage, but the collapse of the mucous membrane into the groove stops it up and defeats its object. It is used only by its originator for flexions and as a drainage tube.

To those who object to the stem as dangerous, I would say that at one time they did not hesitate to use a sponge or laminaria tent, which blocks the canal, prevents drainage and provokes constant irritation by its expansive power as long as it is retained. The stem is absolutely clean, allows free drainage and provokes no irritation if the patient is kept quiet. In an experience of over three hundred cases I have yet to see one objectionable symptom follow its use.

I first advocated the use of the stem after dilatation in a letter to the *Medical News* of November 15, 1884, page 558; and again in an

article of considerable length in the same journal of April 18, 1885, page 431, and gave illustrative cases. In March, 1886, I read a paper on this subject before the Section on Obstetrics and Diseases of Women and Children of the New York Academy of Medicine, which appeared in the *Medical News* of April 3, 1886, page 375. I may appear persistent, but there are some whom I have not yet convinced of the correctness of my principle.

Indications for the Stem.—1. The stem is used after dilatation for stenosis to maintain the dilatation and prevent immediate recontraction, which is sure to follow if it is not used.

2. To splint up a flexed uterus after it has been straightened and the flexion overcome by the dilator.

3. To permanently remove obstructions due to hypertrophy or inflammatory thickening, and the consequent hyperæsthesia of the lining membrane of the canal, which it does by the constant pressure it exerts while in position.

4. To secure free drainage from the uterine cavity.

By far the most important indication for the use of the dilator and the stem is to secure free drainage from the uterine cavity of the normal secretions, and of the increased secretions of disease, such as uterine catarrh or leucorrhœa, and thus to forestall and prevent diseases of the Fallopian tubes and ovaries. Remember that every month a woman has a congestion of the pelvis and generative organs which Nature has intended to be relieved by a free flow of menstrual blood. If this flow is natural and escapes freely, the congestion is relieved, and she is better for having properly performed one of her natural functions. If, however, there is any obstruction to this flow at the cervical canal, it accumulates and distends the uterine cavity until the organ resists and contracts to expel it. Repeated efforts on the part of the uterus finally overcome the obstruction temporarily; but such an unnatural and imperfect menstruation tends to continue the congestion rather than relieve it, and, sooner or later, pelvic pain, leucorrhœa and back-ache will be manifested as an evidence of this condition. Disastrous consequences are easy to infer after years of such periodically unrelieved congestions.

A uterine catarrh or leucorrhœa production by congestion consequent upon obstruction of the cervical canal calls unmistakably for dilatation and the subsequent use of the stem to remove the hypertrophy of the canal which is the barrier to free drainage. These

discharges, being dammed back, distend the uterine cavity, and are forced back into the tubes, producing inflammations there (such as salpingitis), and sometimes escaping into the peritoneal cavity, producing septic peritonitis. The origin of a great many pelvic troubles, often thought obscure, may be traced to this condition of the cervical canal. The remedy is dilatation maintained, and lifting of the heavy, congested uterus to its proper place in the pelvis by a well-digested pessary as soon after the operation as it can be borne.

There is urgent necessity for investigating such symptoms as leucorrhœa and painful menstruation when they first occur in young girls before they produce structural changes in the pelvic organs. Especially is this necessary before marriage, because these conditions are always aggravated after marriage unless immediately relieved by pregnancy, and if this remedy is delayed too long the inflammation will have already extended to the Fallopian tubes and ovaries, and conception is impossible. Any mother who neglects a daughter complaining of these symptoms has no one to blame but herself if she develops a tumor or ovarian or tubal disease which can only be cured by removal of the diseased structures.

When dysmenorrhœa is associated with stenosis or acute flexion, the indication for dilatation is evident, but when the os is apparently patulous it is not always an easy matter for one of limited experience to determine just when there is enough obstruction in the canal to demand it. If dysmenorrhœa exists in either a married or an unmarried woman, and there is a discharge from the os, which is eroded, and the passage of the sound through the interval os gives pain, even if there appears to be no obstruction, there will be enough inflammatory hypertrophy of the lining membrane of the canal to produce obstruction and hyperæsthesia when it is congested for menstruation, and dilatation should be done. If it has existed long enough to produce tenderness in the ovarian regions, with thickening and enlargement, there is less danger in the operation than in the neglect of free drainage for the discharge.

The Operation.—The Sims position and speculum are imperative in doing this operation, especially where there is flexion. And an anæsthetic is essential, because it produces relaxation and because the operator can work less hurriedly and with greater care when there is no apprehension of giving pain, to say nothing of the suffer-

ing, saved the patient. Dilatation should never be done at the office and the patient sent home.

Fig. 2.

The dilator shown here is a modification of the Palmer instrument. The blades are made stouter and broader on their lateral surfaces to prevent digging into the tissues, and the shoulder has been made more abrupt. The thumb-screw attachment has been removed. Any instrument capable of exerting more power than this should never be used.

I never use force in introducing the dilator. If the canal will not admit the beak after gentle manipulation (which is not always the case), I use successive sizes of conical cervical bougies (Hanks's), commencing with the size which the canal will admit without force, and when a No. 11 can be passed the dilator will enter freely. The cervix is seized with an angular tenaculum, which allows more room than a straight one and does not tear out, and is steadied while the dilatation is done without using the screw attachment on the handles; because, should the instrument slip backward (which it is very prone to do), the tissues would be lacerated before the pressure could be removed. When the dilatation has been carried as far as appears necessary (and there is no rule to govern this, for the amount varies with each case), the instrument is removed, and larger sizes of cervical bougies, from Nos. 13 to 16 or 18, are passed successively to insure the completeness of the dilatation and to prepare the way for the stem.

Fig. 3.

In introducing the stem, the angular tenaculum, which is here shown, is actually necessary to secure a proper direction of the stem,

as, with the straight tenaculum, the cup shoulder of the stem impinges against its shank and deflects the point of the stem from its course before it has entered the internal os (which is the important point), and pressure upon it while the cervix is fixed with the tenaculum pouches the canal in front of the internal os, and the traction upon the cervix elongates or stretches it until it reaches the cup shoulder and gives the appearance to the stem of being up in position when it is not. A failure will be the result unless this is detected.

Fig. 4.

The applicator shown is also very necessary in introducing a straight stem, as the curve near the point allows the stem to pass the internal os with more ease, and the sliding spiral on the shank may be moved with the thumb, and the stem, when in position, may be pushed off the bulbous point which holds it during introduction. The stem is removed every day, cleansed and replaced, and is used for one week. The patient may get up on the day after its final removal.

Too much must not be expected of the operation alone. Subsequent treatment is frequently necessary to relieve existing conditions dependent upon the cervical obstruction. Mild cases, treated early, may need little or no attention after the removal of the cause; but in cases of long standing, with inflammatory complications resulting, appropriate treatment is necessary to effect a complete cure, and the operation must be looked upon as an initial step in this treatment. Failures after this operation may be traced to a neglect of this precaution. If treatment is discontinued as soon as the actual dysmenorrhœa is relieved, and the pelvic pain and uterine catarrh due to congestion or inflammatory changes are allowed to go on, while they may or may not cause the patient much annoyance, they are often sufficient to prevent conception.

It is best to use a well-adjusted pessary after these operations (where there is nothing to contra-indicate it) to lift the uterus to its original place in the pelvis, which will aid materially in relieving congestion.

I will append a few cases selected from my case-books to how the different conditions for which this operation is appropriate and effectual.

The first five cases are illustrations of primary or congenital stenosis:

CASE I.—*Stenosis of both external and internal os.*

Mrs. Emily H., widow, aged thirty-five years, commenced to menstruate when eighteen years old, with great pain from the first. She was married when twenty-one years old, and was married for about three years without conceiving. Her dysmenorrhœa was very much aggravated, and in addition she suffered with severe pelvic pain, leucorrhœa and back-ache. Examination showed both external and internal os very small, the probe causing sharp pain as it passed the internal os. Dilatation was done under ether, June 14, 1886, and the stem used for one week. She has never suffered any pain with menstruation since, and is entirely well.

CASE II.—*Stenosis with pin-hole os.*

Miss E., aged nineteen years, suffered with dysmenorrhœa since puberty at fourteen years, and it finally became so intense as to be unbearable. A very small cervix was found with pin-hole os and the small uterine probe was passed with difficulty, causing great pain. Dilatation was done under ether, October 23, 1884. Her subsequent menstruations were free from pain, and six months after the sound could be passed with ease.

CASE III.—*Stenosis at the internal os.*

Mrs. M., aged thirty-three years, married ten years, has suffered with dysmenorrhœa since puberty, which was very early. Although her suffering was severe before marriage, it was bearable; but afterward it became so much worse as to render her life one of constant misery. The anticipation and dread of the next period rendered her almost a monomaniac upon the subject during the interval. She had previously sought relief in Edinburgh, London and New York, and persistently refused to allow the knife to be used. No other remedy was offered her. She was sent to me by Dr. Wakefield, of Jacksonville, Fla., after seeing my first paper on this subject. He stated

that he had been obliged to use morphine hypodermically to relieve her suffering, and as this lost its effect it had been frequently obliged to resort to chloroform inhalation to relieve convulsive attacks produced by the severe pain. She was operated upon under ether, May 25, 1885. There was marked stenosis of the internal os. Her dysmenorrhœa has been completely and permanently relieved. Dr. Wakefield wrote me only a few months since that she was in excellent health and had no return of the pain.

CASE IV.—*Stenosis after persistent treatment with sponge tents.*

Miss Virginia G., aged thirty-five years, commenced to menstruate when thirteen years old with severe pain, which lasted as long as the flow. Every succeeding menstruation was attended with pain of the same character. When eighteen she lifted something and felt that she had hurt herself. At the next period the pain was very much more severe. Eight years previous to consulting me she was treated with sponge tents every month for four or five months with some temporary relief. When the treatment was discontinued the pain became as severe as before. The treatment by tents was recommended and continued for two years and a retroflexion pessary used. For a year previous to seeing me she had no treatment, and her dysmenorrhœa was as bad as ever.

Examination revealed a retroflexed uterus with a pin-hole os, which would only admit a small uterine probe. The same probe passed the internal os with considerable difficulty and caused severe pain. Dilatation was done under ether, April 5, 1887. The introduction of the dilator was out of the question until successive sizes of uterine bougies had been passed to prepare the way. The tissues were rigid and dense and the dilatation was difficult, but was carried to a point where a No. 10 bougie could be passed. Twelve months have elapsed and she has never since experienced the least pain during menstruation, and an ordinary-sized sound can now be passed freely and without giving pain. She has worn a pessary since the operation.

CASE V.—*Stenosis associated with epilepsy.*

Mrs. K., aged eighteen years, commenced to have epileptic spasms when about twelve years old. Her menstruation appeared scantily

and with much pain two years later, and with it the epileptic attacks increased in frequency. She had noticed that the attacks were more apt to occur just before and just after menstruation, which was still scanty. Examination showed an undeveloped uterus (only two inches) with marked stenosis. Pelvic contents normal in other respects. Dilatation done under chloroform, February 7, 1887. She had two slight attacks while wearing the stem—the first the day following the operation and the next on the third day—but none after. Her next period was free from pain, normal in quantity, and there was no return of the epileptic attacks. More than a year has now elapsed and she is enjoying excellent health still.

The next two cases will illustrate secondary or acquired stenosis :

CASE VI.—*Extreme stenosis following miscarriage.*

Mrs. E. S., aged twenty-seven years, married ten years, has menstruated since she was ten years old without pain until after having a miscarriage at five months, when one year married. After this she suffered with severe and constantly increasing dysmenorrhœa, and never became pregnant again. For a year previous to the operation she had convulsions at every menstrual period, until the flow became freely established. Examination showed the uterus in normal position, but it was actually impossible to pass the probe through the internal os. The uterus was sensitive and enlarged. Dilatation was done under ether November 16, 1885, and great difficulty was experienced in introducing the dilator. In fact, it could not be done until a cotton-wrapped flexible applicator was forced through. The cervix was so rigid and tough that it sprung the blades of the dilator, and it was difficult at first to introduce a No. 10 stem, which was grasped by the cervix as in a vise. In four days, however, a No. 14 stem was introduced with perfect ease. She has menstruated since without any pain whatever, and no convulsions. One year after the operation I could pass the sound or an applicator wrapped with cotton with perfect ease and without giving pain. There had then been no return of the dysmenorrhœa.

CASE VII.—*Stenosis from cicatricial contraction following division of the cervix.*

Mrs. N., aged forty, married twice, with one child fourteen years old. She was treated by Dr. Emmet when first married, and her

pregnancy was the result. She advanced dysmenorrhœa at that time. It developed subsequent to the birth of her child, and in 1882 she was treated by a distinguished physician of Washington, D. C., who did Sims's posterior division of the cervix in his office and sent her home. She was worse after this operation. In Galveston, Texas, she was treated in 1885 with sponge tents repeatedly without permanent benefit. And in the spring of 1886 she was treated in Boston by bougies at stated intervals. The treatment was so painful and the result so unsatisfactory that she abandoned it after a few months' trial. When she consulted me, in December, 1886, she declared herself worse than ever before. Dilatation was done under ether, December 29, 1886, and there was found marked stenosis of the internal os from cicatricial contraction following the division of the cervix. The dilator could not be introduced without previous dilatation with conical bougies. After the dilatation was completed the edges of the posterior slit were pared and brought together with silver wire sutures and the stem introduced. The result was perfect and satisfactory one month later, when she left the city. She has since written me that she has no pain during menstruation.

The next case will show the effect of dilatation upon a conical cervix :

CASE VIII.—*Stenosis from anteflexion with elongated cervix.*

Miss A. B., aged twenty-four, has menstruated since she was fifteen years old, at first without pain. But for three years past she has been having pain with every period, and every year it has increased in severity. Lately she has suffered severe pain, accompanied with back-ache for two or three days preceding the flow, which is very profuse. This continued during the whole period, which usually lasted a week. Examination showed constriction at the internal os, anteflexion of the body, and a conical cervix which was greatly elongated, the os being near the vulva. Dilatation was done under ether, January 3, 1887. The constriction offered great resistance to the introduction of the dilator, and the dilatation was accomplished with difficulty with my strong dilator. The stem could not be introduced until it had been previously curved by heating over a spirit lamp. A straight stem was used two days later, however, when a larger size was introduced. A pessary was used soon after the operation to prevent a recurrence of the malpo-

sition and to lift the uterus in the pelvis. Her subsequent periods were normal and free from pain and back-ache. When seen last, in November, 1887, she was enjoying excellent health, and was still wearing a pessary. The condition and position of the os were normal.

The next three are cases of dysmenorrhœa due to flexions of the uterus producing either stenosis or obstruction.

CASE IX.—*Anteflexion producing obstruction at the internal os; conical cervix.*

Mrs. S., aged twenty-seven years, married one year, has menstruated since thirteen years old, with very little pain before marriage, but it increased after marriage, and she did not become pregnant. Three months before consulting me she jumped from a carriage and felt that she had hurt herself, and since then the dysmenorrhœa has been very much worse, and she has had constant pain in the right side. On examination I found a conical elongated cervix and small external os, which was extensively eroded. There was a slight obstruction at the internal os, the sound producing pain as it passed and the uterus was anteflexed. Dilatation was done, February 15, 1887, under ether. She made a good recovery after appropriate treatment for the granular cervix and endometritis. The dysmenorrhœa and pain in the side were immediately and permanently relieved. She became pregnant after treatment was discontinued, and was confined, January 3, 1888, less than a year after the operation.

CASE X.—*Anteflexion, obstruction at internal os and endometritis; cap-brim cervix.*

Mrs. C. H., aged twenty-four years, married two years (sterile), has menstruated since fourteen years old, always with pain, until the flow was freely established. The dysmenorrhœa was much aggravated after marriage. Examination showed anteflexion, obstruction at internal os, the passage of the probe producing acute pain and a condition of the cervix which has never been described before, viz: the anterior lip of the cervix projected forward like the brim of a cap, and something like what is seen in a bilateral laceration of the cervix which has stood for a long time. But in this case

the projecting lip was thin and the cervix behind it was eroded. There was descent of the uterus, which was heavy, and this condition was probably produced by pressure upon an habitually full rectum. Dilatation was done under ether, February 27, 1886. Her dysmenorrhœa was immediately relieved, and a pessary, with appropriate local treatment, soon relieved the eroded condition of the cervix and the endometritis. She became pregnant in June, 1887.

CASE XI.—*Retroflexion and obstruction associated with reflex asthma.*

Miss R., aged eighteen, was thrown from a carriage when ten years old and injured her back. She recovered sufficiently to lead her parents to suppose there would be no further trouble. When menstruation appeared it was with an effort, very scanty, and associated with some pain. For two years previous to the operation she had been under my observation, and at almost every period something had to be done to establish the flow. A few days before she would have an attack of asthma, which resisted all treatment and which would increase in severity every day until menstruation was established, when it would gradually subside and disappear. The flow was scant and often retarded for a week or more, and the patient was a constant sufferer from back-ache, leucorrhœa and dysmenorrhœa. At the period preceding the local interference there was a decided convulsive attack, followed by complete nervous prostration, which decided the future action. Examination revealed an acutely retroflexed, undeveloped uterus low in the pelvis, with obstruction at the point of flexion. Dilatation was done under ether, April 10, 1886. A pessary was used to maintain the corrected position of the uterus, and her subsequent periods for a year were normal, and the asthmatic attacks did not again appear. After this a course of electricity by the faradaic current was necessary to develop the uterus, as the flow commenced again to be insufficient.

CASE XII.—*Anteflexion, obstruction at the internal os and concomitant enlargement of left ovary.*

Miss K., aged twenty-one years, has menstruated since she was fourteen years old, with no pain for the first two years. When sixteen years old she commenced to have pain, mostly before the flow

made its appearance, and during the last two years it has been very much more severe than formerly. For six months past the pain has been so severe as to compel her to go to bed and take something to bring on the flow. She has complained also of severe pain in the left ovarian region during the interval, which is very much worse just before menstruation. This continued during the flow, and for sometime after, being only slightly relieved by it. Examination showed the uterus anteflexed, low in the pelvis and sensitive to the touch, but freely movable; and there was enlargement of the left ovary, which was exquisitely sensitive. The external os was patulous, but eroded; and the passage of the sound through the internal os caused excruciating pain, but there was apparently little obstruction. Dilatation was done, November 26, 1887, under ether. The left ovary was examined at the time and found to be of about the size of a walnut. She menstruated December 17th freely without pain, and there was very much less pain in the ovary. She was treated with applications of cocaine to the vagina during the next interval, and she had little or no pain. Her next period was not preceded by the usual pain in the left ovarian region. Treatment was continued during January. When examined March 1, 1887, there was no perceptible enlargement of the ovary and no undue sensitiveness about the uterus, which was normal. She has had no pain since.

The following three cases will show how hypertrophy and thickening of the lining membrane of the canal may produce dysmenorrhœa and prevent drainage of the discharges from a co-existent endometritis or catarrh, and how this condition is relieved by dilatation :

CASE XIII.— *Obstruction at the internal os, with endometritis and granular erosion of the cervix.*

Mrs. C., aged about twenty-seven, married five years (sterile), was sent to me by Dr. Wakefield, of Jacksonville, Fla. She had suffered with dysmenorrhœa since puberty, but it had been very much aggravated since her marriage. She was for sometime under the care of a specialist in Cincinnati, but was not benefited by his treatment. For a year previous to consulting me her suffering at every period was indescribable. Examination showed a very sensitive uterus, low in the pelvis, a granular erosion of the external os and a chronic endometritis. The passage of the sound through the internal os produced excruciating pain, but there was apparently very little obstruction. Dilatation was done under ether, September 14, 1885. Her next period was entirely free from pain. Dr. Wakefield wrote me a year later that she continued to menstruate without pain, and very recently he wrote that he believed she was pregnant. The

delay of the latter result was probably due to her persistent refusal to undergo after-treatment.

CASE XIV.— *Obstruction at the internal os, chronic endometritis and erosion of the cervix.*

Miss M., aged twenty-six years, commenced to menstruate when twelve years old. She always had dysmenorrhœa, and when eighteen had to discontinue her studies because of ill-health due to excessive dysmenorrhœa, back-ache and leucorrhœa. For three years previous to the operation her symptoms were very much aggravated. The pain preceded the flow, and was somewhat relieved by it, but severe back-ache followed. Examination showed the uterus low in the pelvis, greatly congested, and there was chronic catarrh of the uterus and erosion of the cervix. The sound produced severe pain as it passed the internal os, but there was not much apparent obstruction. Dilatation was done under ether, February 5, 1887. She menstruated on February 18th without any pain or inconvenience, and her subsequent periods were free from pain. A pessary was used, and the local trouble received treatment. She is now enjoying excellent health.

CASE XV.— *Obstruction at the internal os, endometritis aad sciatica.*

Mrs. M., aged thirty-five years, married eight years (sterile), had very little dysmenorrhœa until after she was married, when it increased in severity. For a year previous to the operation she was troubled with sciatica, which was worse just before and during the menstrual period, and which resisted all treatment. Examination showed a heavy sensitive uterus low in the pelvis, with chronic endometritis and some obstruction at the internal os, the sound producing severe pain as it entered. Dilatation was done under ether, November 6, 1885. Since the operation she has had no dysmenorrhœa or sciatica. She became pregnant one year after.

In conclusion, I would say that I have never been obliged to repeat the operation since I adopted the use of the stem, and have never failed to permanently cure the dysmenorrhœa; while other operators, who do not use the stem, frequently find it necessary to repeat the dilatation.

I regard the statistics of sterility as deceptive and unreliable, inasmuch as it is possible to keep all patients under observation after operation. In consequence, some are counted upon the negative side before a sufficient time has elapsed to render conception improbable. Of those operated upon, where sterility existed and where conception could have been expected, about one-third have conceived.

ON THE IMPORTANCE OF THE EARLY DIAGNOSIS AND TREATMENT OF NASAL POLYPI.

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(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

It is well known that the study of the nasal cavities was one of the last to receive special attention in the medical world. Our knowledge of other regions of the body, their diseases and the best methods of treatment, was long far in advance of that of the nose. In our colleges this subject was neglected, and if the student were given opportunities for special study in any particular branch of medicine, it certainly was not this. The reason for this was that the leaders of the profession themselves had little to teach. For many years, however, a change has been taking place. Rhinology has made rapid advances. The recognition of the frequent, though invariable, necessity for surgical rather than medical treatment began a new era, and the introduction of electricity, the invention of new instruments and apparatus, and, above all, the appearance of cocaine, have revolutionized the subject. In consequence of these advances the treatment of most nasal affections is far more effective and satisfactory than formerly, notwithstanding the fact that uncalled-for operations by a few enthusiasts may have given rise to the reactionary cry that the nose is now a much-abused organ.

It is not my purpose to weary you with a discussion of the whole subject of nasal polypi—the different varieties, their etiology, symptoms and the various methods of treatment; but I desire to direct attention especially to one point, and that is the great advantage to be derived from an early recognition of the presence of polypi in the nasal cavities. The dangers of delay in dealing with malignant or semi-malignant growths are terribly disastrous, but these are fortunately comparatively rare, and I shall confine my remarks to the more common varieties.

All will admit that this region is commonly more neglected than

any other in the body. When patients suffer from nasal symptoms caused by a polypus they generally refer the trouble to a cold, regard it as the inevitable lot of frail human nature, and allow it to go on week after week or month after month unexamined and untreated. Or else they conclude that they are the victims of "catarrh" and join the ranks of those who enrich the catarrh quacks. If a polypus is sought for and found while still small, its removal is accomplished with comparative ease, and if necessary its site may frequently be cauterized with the confident expectation that a recurrence will be prevented. Usually, however, the case is neglected until the respiration and voice become affected and the patient is forced to apply for relief. The nasal cavity is then more or less completely plugged, often on both sides. Instead of one there may be many, and they may have grown to such an extent as to appear in the pharynx below the palate or at the anterior nares. Thorough extirpation is now comparatively difficult or in some cases impracticable—treatment is far more troublesome to both patient and surgeon, and it may be impossible to prevent their return.

As illustrating these remarks very forcibly allow me to present the evidence of four cases selected for the purpose from a number of like character in the practice of my associate, Dr. Lewis, and myself. The first is that of a woman, aged twenty-one. She first noticed that something was the matter with her nose ten months before applying for treatment. There was some hypersecretion and a gradually increasing interference with respiration through one nostril. When I saw her all breathing through the left side had become stopped. With the head mirror and nasal speculum alone nothing could be seen, but, after throwing in a spray of a four per cent. solution of cocaine for half a second, the turgescent mucous membrane contracted, the calibre of the cavity was enlarged and a growth could be detected blocking up the passage near the posterior nares. The use of a probe showed that it was polypoid in character and globular in form, and that it grew from the inner aspect of the inferior turbinated bone near its posterior extremity. Its size was reduced somewhat and the surrounding parts made anæsthetic by a twenty per cent. solution of cocaine applied by means of a small mop of cotton on the end of a cotton-holder. The platinum wire loop of a snaring apparatus connected with a galvano-cautery

battery was passed around it without difficulty and drawn tightly about the pedicle close to the bone. The electric circuit was then closed, the loop heated and the growth cut off with the loss of only a drop or two of blood and with scarcely any pain. Breathing was now as free on this side as on the other. Treatment was here delayed longer than it should have been and was employed none too soon; but this case furnishes a marked contrast with the following, both as regards the results of neglect and the methods of treatment.

The second case was also a woman, aged thirty. This patient I first saw in consultation with Dr. A. W. Knox, under whose care she then was. At that time both nasal cavities were completely stopped. Nothing could be seen on the right side from in front, but on the left side a polyp could be easily seen, without a speculum, filling the cavity almost as far forward as the external opening. The most urgent condition of things, however, was in the pharynx. There was a mass of polypoid tissue so filling the upper pharynx as to block up both posterior nares, lie in close contact with all the pharyngeal walls, displace forwards the velum palati and protrude a half-inch below its free edge. Respiration could still be carried on with comfort through the mouth, but deglutition was a difficult matter. Whether the polypus seen in the nose was a part of the larger one behind we could not decide, nor could we determine the exact point of origin of the pharyngeal growth; but careful examinations with a probe in the nasal cavity and afterwards with the finger in the pharynx, showed that it had probably grown from some point on the outer wall of the left nasal cavity and had pushed its way backwards into the pharynx and then downwards. This afterwards proved to be the case. Using my battery and apparatus, Dr. Knox skilfully removed the greater part of the growth in one piece. Employing a Bellocque canula, he introduced a piece of narrow tape through the more obstructed side of the nose close to the septum, then, releasing the spring of the canula, its end bearing the tape, appeared in the back of the mouth. This end of the tape was then drawn out of the mouth, leaving the other end hanging from the nostril, as in the ordinary operation of plugging the posterior nares. The loop of the snare was then fastened to the end in the nostril and pulled through the nose into the pharynx. The tape was then removed, and, with the aid of the finger in the mouth, the loop was passed around the lower end of the growth and drawn

up on the pedicle as far as possible. The wire was then heated by passing the current and the pedicle cut through. The part thus cut off was removed by forceps through the mouth and measured one inch in thickness, one and one-fourth inches in breadth and two inches in length. From the plugged condition of the entire naso-pharynx the loop could not, of course, be carried as far towards the point of attachment as was desired, and the thick stump of the pedicle was left protruding a short distance from the posterior nares. The left side of the nose was still choked, but the right side was free for breathing purposes and the pharynx was empty. The most annoying part of the trouble had been removed, and further manipulations were deferred to another sitting. Cocaine was used in this case, as usual, and the pain and bleeding were trifling in amount. Dr. Knox afterwards turned the case over to me, and by repeated snarings I succeeded in clearing out the cavity entirely. More than twelve months later I saw the patient again and made an examination. There had been no return of the growth and she could breathe freely through both sides of the nose. Her voice was natural, and, as she said, she hardly felt like the same person who had been so annoyed for so many years. Two years before applying to us she had consulted a well known physician and he had attempted to tear away the growth with forceps in the time-honored way. Very naturally he could remove only parts of it, and there was comparatively great pain and profuse hemorrhage, and she thinks that the operation was followed by swelling and that her condition became worse than before. One year afterwards she was treated by another capable doctor, but in the same way and with the same result.

The third case was that of a gentleman, forty years of age, who complained of a more or less continuous watery secretion from the nose. He thought he had a slight catarrh, and was quite astounded when informed that he had a nasal polypus. It grew from a broad base along the edge of the inferior turbinated bone, lay in contact with the septum and filled a large part of the space of the inferior meatus. There was little room, however, above this for the passage of air, and so the presence of a growth of any sort had not been suspected. As is frequently the case, the whole growth could not be removed with one snaring, and it was taken away in pieces, the largest measuring three-eighths of an inch by one inch. The line

of origin was cauterized by a small platinum knife heated by electricity, and a year later there was no sign of a recurrence.

The fourth case again is in striking contrast with the third, and again shows the effect of delay and neglect. The patient was a man, aged fifty. He had had the affection for twenty-three years, and one side of the nose had been operated upon by a prominent surgeon of Baltimore twelve years before I saw him. At that time the forceps was used, and as the action of cocaine in controlling hemorrhage, as in other respects, was then unknown, the bleeding was such as to greatly alarm the patient. This experience deterred him from seeking treatment for so many years. When he consulted me the growth had, of course, long ago returned, and it required great effort to force air through either nostril. There was an extremely disagreeable stuffy feeling in the nose, and in trying to relieve himself he was continually blowing it in a violent manner. This, in addition to frequently recurring attacks of asthma, had made life a burden for years. On examination I found polypi completely plugging the right nasal cavity, filling every crevice from roof to floor and tightly packed. They extended from near the anterior to the posterior opening. On the left side the condition of things was almost as bad. The points of origin afterwards proved to be numerous, but as usual none grew from the septum. The treatment was both tedious and difficult, but by snaring off piece by piece, gaining as I went on more and more room in which to work, I finally succeeded in emptying both cavities throughout their length, with the exception of the small superior meatus. The resulting freedom of the passage of air and feeling of comfort in every way made him the happiest man whom I have ever seen. But the middle turbinated bones approached so closely to the septum and the spaces above them were so stuffed with the growths that they could not be satisfactorily cleared out. A recurrence was therefore anticipated, and, in fact, eight months later they began to give trouble again. This time, however, they were easily cut off again up to the old level, and he was made comfortable as before. Some pieces of considerable size were severed, not only without hemorrhage, but actually without the patient's knowing when it was done; and this is not unfrequently the case. The patient is still under treatment, and I hope to eradicate the growths permanently.

There is one point in this case which illustrates the now well-

known fact that affections of other parts of the body are sometimes closely connected by a reflex neurosis, as the phrase is, with nasal disease. This is especially apt to be the case with asthma, and the point I wish particularly to notice is this: from the time of the first operation to the present this patient has been almost entirely free from the asthma that was such a source of misery to him before. It is now the routine practice with many to look to the nose in every case of this disease as at least a possible source of the trouble.

I will not go into the treatment of polypi further than to remark that the forceps has been completely superseded by the snare. There can be no comparison between the two. The snare causes less pain and less hemorrhage, smaller cavities may be reached by it, and it is more effective in every way. The only advantage still claimed by some for the forceps is that the polypus may be torn out by the roots, but this is theoretical only; in most cases the growth itself tears and the so-called root is left to grow again. If the snare is applied close to the membrane a recurrence is not likely, and if the extirpation does not seem to be thorough, the point of origin may be cauterized. As a rule the clumsy forceps cannot be gotten close to the origin, and must take hold where it can. With regard to the preference of the cold or the heated snare, there is a difference of opinion. Some cases are better treated by the first, others by the second.

In conclusion, that which I wish to emphasize beyond anything else is that, in every case of nasal trouble, however apparently trivial, it should be the invariable rule to *make a careful inspection of the cavities.* It is hardly to be expected that every physician should possess the necessary throat mirror, or have the requisite skill to make a rhinoscopic examination, but a nasal speculum and a head mirror ought to be at the command of every one. I admit that, to most of us who have not paid special attention to the subject, a glance into the anterior nares gives little information, especially if there is congestion of the parts, but the application of a drop or two of a four per cent. solution of cocaine, either in the form of spray or with a small cotton mop or camel-hair brush, makes a wonderful difference. In a few minutes, as we all know, the erectile tissue becomes contracted, the blood is forced out of its vessels and the membrane is closely applied to the turbinated bones. The result is that this dark cavity is comparatively opened up to the light,

With the nasal speculum in position, *the tip of the nose elevated by the finger*, and a head mirror throwing a strong artificial light into the nostril in different directions so as to command all possible parts of the cavity, its bony conformation must be very unusual if any abnormal growth escapes detection. I am aware that a few cases have been reported of alarming symptoms following an appplication of cocaine to the nose, but the possible idiosyncrasy of one patient in a thousand is not to outweigh the great advantages to be derived from its use. I know, too, that the injudicious use of the drug for long periods has led in some cases to the formation of the cocaine habit, and that some are afraid of it on this account; but the same charge can be brought with greater force against morphine, and I have yet to hear of a physician who never uses morphine. There is no danger in the drug in this direction when used by the physician, it is only when prescribed for the patient's own use that it is liable to be abused, and even then the danger has been very much exaggerated.

THE CONTAMINATION OF FOODS WITH METALLIC POISONS,

By F. P. Venable, Ph.D.F.G.S. Chapel Hill, N. C.

(Read before the Medical Society of the State of North Carolina at Fayetteville, May 8, 1888.)

The purity and healthfulness of the food we eat is manifestly a question of paramount importance, yet comparatively little attention is paid to it. Liquid and solid foods are swallowed with a blind ignorance of, or a supreme indifference to what they may contain. Unless the contamination is sufficient to make itself sensible to sight or smell or taste, we are apt to neglect it, forgetful how small an amount of some poisons can cause serious, if not fatal, results. Occasionally a newspaper account of some adulteration startled us from our equanamity, but the effect is not lasting, and we soon subside into our original condition of faith or recklessness.

It is true that our legislators sometimes try to turn the engine of the law upon the evil-doers who would tamper with food, but their wisdom is rarely sufficient to aim the legislation rightly or properly to enforce it. Protection for the people cannot come by mere law-making alone, but by a general enlightenment as to food contamination and by the establishment, at convenient points, of laboratories, manned by experts in inspection and analysis.

Many States have laws on Adulteration of Foods, some of which are laughably inefficient. Dr. Love makes the statement (Parke's Hygiene, Vol. II., p. 509) that "a majority of the acts aimed at the suppression of adulteration in particular articles make no provision for enforcing the law, and hence nothing more is heard of them." This shows the lack of proper enlightenment on the subject. Our law-makers do not know and cannot understand what is needed.

Again, in several of the larger cities municipal laboratories have been established and have proved exceedingly valuable. Abundance of work has been found for them to do, and they have greatly aided in repressing fraud. For example, the Municipal Laboratory of Paris, capital city of the land of wine, examined, during ten months of 1881, 3,001 samples of wine, finding only 279 of them "good." The laboratories afford a partial protection for the cities, but their

multiplication must force those handling contaminated wares to dispose of them to the unsuspicious and unprotected farmers and dwellers in the small towns. It has seemed to me somewhat anomalous that fertilizer control stations should be established all over the country to analyze the food of the soil, whilst no one looks after the food of the tiller. Should there not be Board of Health laboratories to examine our water, milk, vegetables and groceries?

I can but briefly speak of some of the more common, and hence more dangerous, forms of food contamination, without entering upon the subject of adulteration in general. In many cases, doubtless, I will but remind you of facts you already know, but by bringing them afresh to your attention something may be done to stay the dangers which beset the people.

Food may be contaminated with metallic poisons accidentally, through ignorance or carelessness, or, secondly, intentionally. Some little instruction in the chemistry of every-day life in our public schools would largely do away with the first source of dangers. Analytical experts alone could antagonize the second, and we cannot include intentional adulteration within the scope of this paper.

The principal poisonous metals occurring in food are copper, lead and zinc, and as to the exact physiological action and degree of danger from these, a variety of opinions seem to exist. Hassall calls them all cumulative poisons. This can only be true of some of them by extending the word cumulative to the effects resulting from their action. The system, for instance, is apparently capable of eliminating a little of the zinc compounds, but the derangement caused by frequently repeated small doses may so aggregate as to cause serious trouble.

The contamination of water with lead from the conducting pipes has been the object of so much attention that this danger is generally well guarded against, and will need no special mention in this paper. But there is a great and growing danger with regard to zinc salts getting into our drinking and cooking water, and to this I have already adverted in the North Carolina Medical Journal, Vol. XIII., No. 5, p. 221. The use of zinc or zinc-lined vessels for storing water, and of galvanized iron pipe in transporting it, is becoming more and more common. I have examined water thus brought through galvanized iron pipe a distance of —— yards and found — grains of zinc to the gallon.

Galvanized iron is iron coated over with zinc. It is well to state, also, that this zinc nearly always contains arsenic. In some localities milk is often kept in zinc or galvanized iron vessels. Such vessels are cheap, lasting, and, besides, have the effect of keeping the milk sweet a longer time than usual, and adding about twelve per cent. to the amount of the cream. The explanation of these last actions is to be sought for in the neutralization of the acid, as fast as formed, by the zinc giving zinc lactate. From the presence of this acid such use of zinc is much more dangerous than in the storage of water.

If water and milk attack and dissolve zinc and lead when brought in contact with them, manifestly the solvent action is greatly increased in the case of distinctly acid foods such as fruits and vegetables. We find in these especially acetic, tartaric, citric, malic and aspartic acids, sometimes uncombined, sometimes as partially saturated, and hence still acid salts. These have strong solvent action on some metals, particularly if the process of oxidation is going on at the same time. Furthermore, meats which have been salted attack such metals, and where either the meat or the flavoring substance, as mustard or onions, contain sulphur, the action is increased. Lastly, it must be borne in mind that fats are slowly saponified by these metals, glycerin being set free and compounds called soaps or plasters formed between the metals and the acids of the fats.

Our ordinary articles of food may be contaminated during preparation or by storage.

In preparing food in metallic vessels several agents aid in the solvent action. First, there is atmospheric oxygen, which is present in the water, used in cooking, then we may mention acids such as vinegar, salt, soda and sugar. The metals are probably first attacked by the oxygen forming oxides, and these are brought into solution by the aid of the acids, salt, soda (forming with lead, for instance, plumbate of soda) or the sugar (forming saccharates). If cooking vessels, especially copper or brass, are scrupulously cleaned and brightened, freeing them from all oxide (or verdigris) just before using, and then the substances, cooked in them, removed as soon as the cooking is over, not allowing time for oxidation and solution, the danger of contamination is much lessened.

Copper and brass vessels are so convenient that their use is greatly extended, but it would be far better if the inside were freshly tinned every now and then. This precaution is taken by the Asiatics who

heat the copper above the melting point of tin and then rub over the interior a piece of block tin. Tin is attacked, but more slowly than the other metals, and forms less objectionable compounds. Unfortunately, much of the block-tin offered for sale is impure, having arsenic, antimony, lead and copper as its principal impurities, and cases of serious arsenical and lead poisoning have been noticed from the use of tin-lined vessels. Still pure tin can be gotten, and even the impure is better than the unprotected copper or brass (which is an alloy of zinc and copper).

Metallic cooking vessels are often protected by a coating of glaze or enamel. The glazing generally employed is of two kinds: Either it is composed of aluminium and potassium silicate along with calcium phosphate or sulphate or some similarly harmless materials, that is glass enamel; or it is essentially lead glass with a large proportion of lead. This lead glass, as being easily fusible, very commonly forms the glaze on yellow and light-colored earthenware, which is used for baking-dishes, preserve-jars, milk-crocks, etc. Our ordinary glass table-ware is also lead-glass, generally, but contains less lead and is less easily attacked. It is maintained by some German authorities that even this is dangerous, so that the use of such glass is more common in England and America than on the continent of Europe. Still the food remains in contact with it so short a time that the danger can only be slight.

If the earthenware has been poorly baked the glaze is still more attacked. In "Umspratt's Chemistry" the statement is made that badly baked ware readily afforded indications of the presence of lead when digested with vinegar. Where these earthenware vessels are used for cooking the lead-glaze becomes decidedly dangerous. Æcum has written: "Pots of this kind of stoneware are wholly unfit to contain jellies of fruits, marmalade and similar conserves. Pickles should in no case be deposited in cream-colored earthenware."

The reason for warning against this special color of earthenware is because it is usually made of materials which do not stand baking at a high temperature, and hence a more fusible glaze is applied to them.

Æcum goes on to say: "The baking of fruit-tarts in cream-colored earthenware and the salting and preserving of meat are no less objectionable. All kinds of food which contain free vegetable

acids or saline preparations attack utensils covered with a glaze in the composition, of which lead enters as a component part."

The color in some of the enamels for metals has been mentioned as a source of danger. The cheaper colors that would probably be used, provided that lead colors are excluded, would, I think, hardly be dangerous.

Frequently cooking vessels of tin-ware are used. Of the tin-ware itself I shall have more to say further on, but I wish now to mention the solder used on such vessels. This is made of lead and tin, and is sometimes present in considerable amounts in the joints of the tin-ware. The boiling of water alone in such vessels will cause the solution of some of the lead, and of course the acids of foods would dissolve still more. The ware should be formed of solid tin without joints, when practicable. If solder must be there, the least amount necessary for the work should be used. Often it is possible so to turn the joint as to bring the solder on the outside. Of course this is much better.

Coming now to the storage of foods, we find occasionally zinc or galvanized iron used, as for water and milk. The danger here has been pointed out. The use of glass jars is more common. These should be made not of flint or lead, but of ordinary soda or calcium glass (called "window" or "crown" glass). These should be also entirely of glass. Often we see them with zinc tops or covers, which are screwed down upon the contents.

In Parke's Hygiene, Vol. II., p. 514, a case is reported where serious sickness attended the use of cherries preserved in such a jar. It was found that these cherries contained a small amount of zinc, whereas the same amount of fruit preserved in jars with glass covers did not contain the metal. The sickness in this case may or may not have been due to the zinc, but the fact of the contamination, and, at least, probable danger from it, remains.

By far the most common article used for storing food is tin. The use of this in the cans for fruit, vegetables and meats, and the buckets for lard, oil, etc., is enormous. I have been unable to find out from the census reports the exact amount of tin-ware used in this way in the United States, but as the tin is mainly imported and bears a duty-tax of between $5,000,000 and $6,000,000 (which it has been proposed in the present Congress to double), the value of the ware must be many millions.

As each can has the value of a few cents only, their total number is something incredible. In the census of 1880 the value of fruits and vegetables alone, "canned and preserved," is given as $17,599,576. And the industry is growing rapidly. I see it announced in the papers that our Agent of Immigration is making arrangements for the establishment of forty canneries in this State.

Tin-ware is made by dipping sheet-iron or thin sheets of steel into melted tin, securing thus a protective coating over the former metal. There are two grades of tin-ware: that in which the coating is of fairly pure tin, and secondly, that in which, to cheapen the product, the tin has a large admixture of lead. This is known as terne plate. The first has a bright appearance, the second is heavier and of a duller appearance. The same two grades are seen in tin-foil also.

If, as is required by the French Government, the tin-cans are made of the first grade ware and the soldering is done either with pure tin or on the outside, the only possible contamination must come from the tin itself. If terne-plate is used and special care is not taken, tin and lead, from both can and solder, and zinc chloride from the latter, may be present in the contents of the can. A solution of zinc chloride is the common soldering fluid, and its detection in canned goods has been reported by Battershall. Even with pure tin, the careless and excessive use of solder is frequently a source of danger as lumps of the solder break off and are taken into the stomach along with the food.

Battershall (Food Adulteration and its Detection, p. 225) records the examination of 109 samples of canned goods, 97 of which contained tin, 39 copper, 4 zinc and 2 lead. The copper was introduced by the preparation in copper vessels before canning, or was intentionally added as $CuSO_4$ to give a green color, as in peas, pickles, etc. The small number of samples found to contain lead showed that the terne-plate is not much used in making cans. Indeed, Hall (*American Chemical Journal*, Vol. IV., p. 440) states that he has tested cans from various sources and not once did he find lead enough to show intentional adulteration. The leaded tin or terne-plate is too heavy and dull-looking for ordinary use in cans, though it is largely used in roofing, and so can easily come in cistern water caught from such roofs. In the Michigan Board of Health Report

(for 1878, p. 19), however, analyses of tin-ware are given in which lead is appreciable, even considerable amount was always found.

Hall also gives some analyses of tin-foil, which is so much used as a covering for such food as chocolate, yeast, cheese, confections and the like. Out of 8 samples analyzed 4 contained about 75 per cent. of lead. The high price of the article enclosed seemed by no means to insure a pure tin covering. Cheese, as it contains acid, or so easily forms it, should certainly not be enclosed in tin-foil.

Of course, other things being equal, the longer the vegetable or fruit acids are left in contact with the tin, the greater will be the amount of metal dissolved. The contents of some cans examined have contained as much as four grains per quart. Now, while no injury seems to result from small doses of tin, and it does not seem to accumulate in the system, large doses must be prejudicial. It would be advisable, then, to have all cans stamped with the year in which they were put up. The assurance of the healthfulness of canned goods after being kept a few years is not great.

The canning of foods has formed one of our most important discoveries and has greatly added to the comforts of modern life. I would by no means decry the use of canned goods, and tin-ware seems at present essential to their cheapness. But the people should be instructed as to the possible dangers in their use, and be armed against the unscrupulousness of grasping manufacturers. If the cans are of good, bright tin-plate, properly soldered, and are reasonably fresh, there may be said to be no risk in their use. Special warning should be given, however, against leaving fruit or vegetables in the opened cans, as the action on the metals is very rapid after air is once admitted.

Within the limits of this paper it would be impracticable to give all the possible contaminations of foods with metals. The more usual have been recounted. The less common, as, for instance, the case of the baker, mentioned by Blyth (Poisons, p. 565), who used old painted wood in the fire of his oven, and so covered his loaves with the dust of lead oxide and poisoned sixty-six persons, must be passed by. Nor can we enter upon the fraudulent, intentional addition of metals to foods. Such are to be looked for wherever man's greed and dishonesty can find opportunity.

To the physiological chemist and the physician I leave the discussions of the degree of danger from the presence of these various metals in the ordinary articles of our food.

"THE NOSE."

ITS CRIMINAL ASPECT; ITS SINS, ESPECIALLY OF COMMISSION, KNOWN AS REFLEX NEUROSES—AS e.g. ASTHMA, HAY-FEVER, COUGH, CHOREA, EPILEPSY, &C., &C.

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The nose is a large subject to handle. It is larger in some people than in others. In some it is so large that they wound like it curtailed, in others it is so small that it is hardly observable, but some nose is better than no nose; hence, many persons are dissatisfied with the nose; if not with their own, with some other person's.

Unfortunately the nose can not be altered, it is like a wife, it must be accepted for better or worse; often it is for the worse. This is a sad state of affairs, but it has its redeeming features, as some noses are ornamental. From a physical point of view, the nose is frequently the most expressive feature in the face, and there is no question of its utility and importance.

Physiologically considered you will see we can not do without the nose. Hence its growing prominence in medical literature for the last few years. It is the gate-way of the respiratory apparatus, the *heater and filter* of the inspired air. Interfere in any way with this function, and you have innumerable troubles as the result.

Therefore, the nose has to bear a grievous burden. It is guilty of all kinds of sins against the animal economy, both of omission and commission.

Hardly a medical journal appears, but the poor nose is accused of some new dereliction. It has been as much vilified of late as the ovaries and uterus formerly were. These latter organs now have a chance to rest and recuperate. No wonder we have specialists who look after the nose; if it were not for the rhinologist, I fear the universal verdict would be to condemn and banish the nose. But then the rhinologist could not live, so we must perforce keep the nose.

But if we preserve the nose we must examine into and correct its transgressions. What are they?

The principal accusation against it as a sin of omission is its neglect to do its duty as the gate-way of the respiratory organs. It sometimes refuses its duty in part, or wholly, and throws that burden on the mouth, which has labor enough of its own to perform.

It becomes impeded or obstructed through inflammation, etc., and will not act as it should. The usual impediments to its actions are:

1st. Swelling of the turbinated bodies.

2nd. Hypertrophy of the mucosa over the septum.

3rd. Deflection of the septum to one side, and secondary hypertrophy of the tissues in the other nostril.

4th. Outgrowths and other abnormalities of the septum.

5th. Polypi and other foreign growths.

6th. And lastly, it is frequently obstructed through no fault of its own, but because of the blocking of its posterior openings by hypertrophy of the 3rd tonsil at the vault of the pharynx, the so called adenoid tissue.

From this condition of affairs results the second catalogue of sins, sins of commission; sometimes, it is true, they occur without these obstructions, and these accusations are grave ones. It is accused of causing:

1st. Asthma.
2nd. Hay fever, (periodic coryza.)
3rd. Nervous cough.
4th. Migraine, (sick headache.)
5th. Supra-orbital and other headaches.
6th. Glottic spasms and spastic aphonia.
7th. Other involuntary muscular contractions and spasms.
8th. Chorea.
9th. Epilepsy, and epileptiform seizures.
10th. Melancholia, and other mental defects (aprosexia.)
11th. Vertigo.
12th. Exophthalmic goitre.
13th. Globus hystericus.
14th. Otalgia.
15th. Eye troubles (conjunctivitis, glaucoma, etc.)
16th Cutaneous affections of the nose and face, acne, erythema, erysipelas, &c.

This is very nearly a complete list of its derilictions in this respect, and these accusations are brought against it by its friends, by these same specialists whose duty it is to take care of the nose. Strange, but true. But are these accusations true? The idea is monstrous and absurd, say many medical men, especially those of mature years, who are loth to accept novelties. They say that these rhinologists are trying to make out that the nose is the root of all evil, the originator of every ill that flesh is heir to. To some extent they are right, and I fear the nose is sometimes unjustly accused, but it has had a fair and impartial trial, and the mass of clinical evidence tends to a verdict of "proven;" at least it must plead guilty to some of this indictment.

But if it admits its guilt in respect to some of these sins, it does not claim an exclusive privilege in the production of such troubles. Oh no! There are other malefactors in the organism equally guilty; sometimes the nose is innocent. For instance, we have reflex cough, from affections of the external ear, (wax impaction, foreign bodies, eczema, etc.,) from irritation of the auriculo-temporal, and the auricular branch of the superior cervical plexus, and their anastomozing nerve from the pneumo-gastric, (Arnold's nerve.)

Insufficiencies of the ocular muscles are accused of causing the same kind of reflexes, notably chorea, and epileptiform seizures. The genital organs both male and female also labor under the same indictment. But the weight of proof against the nose is in authority and clinical facts. The accusers are men of note, of brains, of great powers of observation, with clinical material at hand. We have no other foundation in medicine for any thing we know—and these men say, the nose does such things by reflex action, by propagation of nerve irritation, and hence they are called "reflex neuroses."

That such reflex impressions were sometimes of nasal origin, was a fact known to the earliest writers in medicine, Hippocrates, Galen and others, and the divine Plate as well (J. H. MacKenzie.)

It is even possible it was known to the ancient Egyptian, for specialists for the nose abounded even in those days, as in ours, according to Herodotus. With occasional references to it through the ages by a writer here and there, we reach the beginning of our modern investigation of the subject in 1871, when Voltolini reported cases of "Spasmodic Asthma" dependent on nasal polypi and cured by their removal, an observation confirmed by the experience of Haenisch, Hartman, B. Frankel, Schæffer, Daly and others.

In this same connection Dr. Daly, of Pittsburg, in 1881 first demonstrated the relation of hay fever, (so called by Dr. Elioston, who thought it to be caused by emanations from hay) to naso-pharyngeal changes. Previously Dr. Geo. M. Beard denominated it a "neurosis," whilst Dr. Marsh considered it was caused by the pollen of leaves and plants.

In 1882 and 1883 its reflex aspect was suggested by Hack.

In this combination of opinion, we have the best explanation of the production of hay fever.

1st. An external irritant.—Marsh.

2d. A soil ready for its reception and progation.—Daly.

3. A neurotic tendancy or central nervous excitability that renders such subjects liable to reflex impressions.—Beard.

In 1882 Dr. Jacobi reported many cases of Chorea dependent on nasal troubles, due as he claimed, to direct or reflex irritation of the tri-facial.

At the same time he called attention to the intimate relations between the lymphatic system of the nasal mucous membrane and that of the dura mater and arachnoid.

Up to 1883 papers on reflex neuroses had also been published by B. Frankel, Herzog, Schadewald and Wille.

In May, 1883, Dr. Elsberg reported to the Laryngological Society various cases of reflex neuroses dependent on nasal disease, and cured by treatment of the local trouble. These cases were chorea, melancholia, epilepsy, neuralgia, (supra-orbital, migraine, etc.) laryngeal cough, glottic spasm, and bronchial Asthma. He also observed that many cases of rhino-pharyngeal diseases suffered from mental depression, loss of memory and inability to fix the mind on a subject (Aprosexia, Guye, 1887) ascribed to the disturbance of the intimate vascular and nervous connection between the pituitary and the brain.

In 1882 and 1883 Prof. Hack, of Freiburg, in Breisgau, rather astonished the medical world by his paper "On the Operative Method" of radically treating migraine, asthma, hay-fever, and numerous other allied conditions, among them being epilepsy, vertigo, involuntary muscular contractions, cough, exopthalmic, goitre, etc.

His method of treatment was the destruction by the galvanic cautery, of the hypertrophied tissues over the lower portion, the irritation of which, he claimed resulted in the reflex production of the various disorders mentioned. In other words, the *anterior portion* of the lower turbinated tissues was a reflex producing area, which, when hyperæsthetic, through hyperæmia or hypertrophy, caused various reflex phenomena, which could be aborted or done away with by destroying the tissues, thus cutting off the reflex current as it were.

In July, 1883, appeared Dr. John N. MacKenzie's paper (in the *American Journal of the Medical Sciences*) seeking to demonstrate the existence of a special *cough producing area* in the nose, said area being confined to the posterior portion of the lower turbinated bodies and the septum opposite the part dominated by the spheno-palatine nerve, and that the reflex phenomena, cough, &c., arising from its irritation, are due to an *abnormal excitability of the reflex centres*, although such reflexes can not take place without engorgement of the turbinated tissues, the main spring of the machinery, which puts the pathological process in motion.

Both MacKenzie and Hack agreed in making the erectile tissues over the lower turbinated bone and the part of the septum opposite, as the principal or sole agent in the production of reflex phenomena, and differ in this, that Hack considered the point of greatest excitability to be the terminal filaments of the nerves in the nasal tissues, instead of the nerve centres themselves, according to MacKenzie.

These papers, especially Hack's, because of the claims made in it, awakened a discussion in the medical world, that divided it into camps,

one that enthusiastically supported these views, and another that turned them into ridicule. Time and experience have proven that both sides to the controversy were wrong.

The numerous reports of cases from a very large number of observers, with the result of this clinical experience, have enabled us to separate the wheat from the chaff. Those enthusiasts who receive every new ism, theory, and remedy with acclamation have been disappointed. Their results have disgusted and discouraged them because they have met with failures. Those so-called conservatives, who believe nothing new in medicine, particually if emanating from a "Specialist" unless it is confirmed by their own limited experience have been amazed and disgruntled at the clinical facts in support of these views, and have been forced to admit *there is something in a nose after all.* They recognize its importance, at least by admitting its transgressions.

Whilst clinical results have not borne out all the claims of Hack, and his theoretical views have been much modified by subsequent investigation, to him is due the honor of a great advance in the diagnosis and treatment of various vaso-motor and reflex disturbances emanating from nasal troubles.

The *limitation* of the reflex producing area of the nose by both Hack and MacKenzie has been shown to be too contracted a view of the subject, and in my address before the American Medical Association in the spring of 1885, I took this view, stating then that my own experience was that such reflex could emanate from the irritation of any sensitive part of the mucosa in the nares or pharynx, in persons with a neurotic susceptibility to reflex impressions, or a hyperaesthetic sensitiveness of the reflex centres.

This has been borne out by my further observations and by that of others. I have *seen reflex cough* in cases of atropic rhinitis, where the lower turbinated bones were entirely absorbed, due in all probability to the irritation of inspissated secretions on the middle turbinated bodies and the septum, also in cases of hypertrophy of the 3rd tonsil (adenoid tissue,) of enlarged tonsils, of thickening over the septum and middle turbinated bodies. I have observed other reflex conditions from the same variety of causes, especially *'headache,"* but I have found this oftener present with enlargement of the third tonsil and hypertrophy of the *middle* turbinated body, particularly if the latter comes into contact with the septum. My experience is that such cases as a rule do not *complain of nasal obstruction*, but many of them have a sense of oppression about the nose. Cases of *complete stenosis* from polyps, adenoid tissue, etc., seem to be exempt from reflex phenomena, and therefore these nervous manifestations can not be caused by obstruction only.

Scheck, however, thinks that the partial obstruction of the nostril plays an important role in the production of reflex neuroses, by causing

the accumulation of carbonic acid in the blood through imperfect aeration, and consequent irritation of the medulla oblongata, and it is possible this element of disturbance is to be considered.

The probable explanation is that they are produced by reflected impression through the medium of the fifth nerve, the tri-facial or trigeminus, by peripheral irritation of its branches, causing central disturbances, and thence reflected to the nerve supply of the part affected.

The nasal and pharyngeal mucous membrane, as well as the soft palate and tonsils receive their nerve supply from the ophthalmic through its nasal branch, and from the superior maxillary through the spheno-palatine nerve and ganglion.

The special functions of the ganglionic portions of the fifth pair is the control of the sensibility and nutrition of the parts, in which it is distributed. The section of the fifth brings about conjunctival inflamation, necrosis of cornea, etc., in the eye, injection, thickening, fungoid changes, etc.,'in the nasal, mucosa, and loss of smell, *i. e.*, vasomotor changes, and this influence is derived partly from the Casserion ganglion itself, partly from *the sympathetic* through its connection with this ganglion and its branches. The ophthalmic receives two filaments, at the cavernous sinus from the superior cervical ganglion, and the superior maxillary has a similar connection through the pheno-palatine ganglion and the gray root of the vidian.

It is easy to comprehend how the irritation of the terminal ends of a nerve, with such important functions, influences, and connections, could bring about various changes in any part under the influence of the nerve itself, or any of its connections, especially troubles of the circulation or respiration. Hence. impressions reflected from its peripheral filaments could be transmitted from its own root to that of the pneumogastric ; or as the latter receives motor filaments from the spinal accessory, the hypo-glossal, the facial, and the first and second cervical, the impression could be transmitted directly from the origin of the fifth to the origin of any of these nerves, and thence (a continuous motor tract) to the pneumogastric.

Moreover, no nerve has such intimate connections with the superior cervical ganglion, as the pneumogastric, and reflex impressions from the naso-pharyngeal mucosa might readily be transmitted from the fifth to the pneumogastric by their direct sympathetic connections through this ganglion.

If we look at the nature of these so-called reflex neuroses, we will see that we have *sensory* neuroses, (headache, supra orbital, neuralgia, etc.) ; *motor* neuroses, laryngeal spasm, chorea, etc.) ; *vaso-motor*, (hay-fever, epilepsy, vertigo, etc.) Some that combine these influences, as *e. g.*, (asthma).

Now admitting that pathological processes or changes in the nasal tissues, and *extraneous influences* in others, cause sufficient irritation of the peripheral filaments of the fifth pair to produce reflex phenomena, and is it that these neuroses assume different phases in different persons? Why does not the irritation of the same part of the nasal mucosa in different persons produce the same effect? Again, why do such a large proportion of those suffering from nasal, pharyngeal, and tonsillar changes manifest *no tendency* to reflex troubles. Why is it one of these reflex phenomena, hay-fever, appears only periodically at fixed periods?

I think that the answer to these questions is that there must be on the one hand a certain condition of the tissues in which the nerves are distributed to render the terminal filaments apt to transmit reflex excitations, and on the other hand, a special disposition of the nervous system, predisposing it to the reception of such impressions, *i. e.*, there must be an abnormal excitability of the nerve centres themselves, or the reflex sub-centres, (J. N. MacKenzie); the form taken by the reflex phenomena being dependant upon which nerve centre or sub-centre is weakest, and not upon the form or location of the trouble which started the process.

Unless both of these necessary elements are present, there is no way of producing reflex phenomena. There may be the special condition of the tissues about the peripheral filaments of the fifth to cause reflex phenomena, but the current meets resistance in healthy nerve centres that choke it off, and again, the nerve centres may be inherently apt to transmit reflex impressions, but do not receive them because the exciting cause is absent.

On this theory I explain the periodic recurrences of hay-fever by the supposition that it is a disease or bacterial origin, that these bacteria through atmospheric of solar influences make their appearance at or about stated periods (May 1st to Sept. 1st,) and that they effect only such persons as have the nasal tissues ripe for their nourishment and cultivation that some of these people have only a slight influenza of short term, because the central nervous excitability is wanting, and that with persons with this central nervous excitability or inherent weakness of the reflex centres, we have all the symptoms of hay-fever in greater or less intensity, according to the susceptibility of the individual.

I think all persons who manifest reflex phenomena have a special neurotic temperament, its manifestations being weakness of this or that ganglion.

Many of them are highly neurasthenic, some anæmic and badly nourished with poor digestion, some hysterical, especially among women. Most of the men, who so suffer, are of the better social sphere, usually intellectual men, who have been mentally over-worked, and

in consequence have become more or less neurasthenic. They have let the acid in the battery run low, and the elements have lost their resistance.

Asthma, viewed fram this standpoint, is produced by reflex irritation of the pneumogastric, resulting in spasmodic contraction of the bronchial muscles and approximation of the cartilaginous rings of the bronchi, (Traube,) and this motor neurosis may be further aggravated by accompanying vaso-motor changes in the mucosa of the bronchioles resulting in stasis and exudation. The peripheral irritation may be caused by polyps, turbinated hypertrophy, abnormalities in the mucosa in the septum, adenoid tissue, enlarged tonsils, chronic rhinitis, granular pharyngitis, etc., (Voltolini, Max Schæffer, Sommerbrodt, Hack, B. Frænkel, Terrillon, Hering, Baratoux, Elshberg, Seyfert, Lublinski, and others).

Of about 300 cases reported, that I have had access to, there were about 40 per cent., of cures by the local treatment alone. My own experience with supposed reflex asthma, *i. e.*, where pathological changes in the naso-pharyngeal mucosa were found, and no pulmonary or bronchial lessions could be discovered, has been even better than this, but most of my cases have been exceptionally good ones in young subjects.

Some years ago I reported a cure of a case of years standing in a young lady, by simply relieving her of a chronic rhinitis, and she remains cured to this date.

This past winter I cured a young boy who has *had asthma* 11 *years*, by removing very large turbinated hypertrophies with the galvano cautery. But we meet with occasional cases of long standing, undoubtedly of reflex origin, that resist all remedies, and at best only get a modification of their trouble.

In this connection it has occurred to me that we might look for one cause of that inexplicable affection "*Angina Pectoris*" without organic heart trouble, in intra-nasal changes. It is a trouble of the respiratory and circulatory apparatus, directly under the influence of the pneumogastric and great sympathetic. I have never seen a report of a case due to this cause but because of the known influence of the fifth pair in the production of similar disorders, and the known fact that this disease has been reflexly produced by pivoting a tooth (reflex irritation) I should think that in such cases it is worth while to examine into the condition of the nasal mucosa.

Nervous cough can be explained on the same basis as asthma. As a motor neurosis from reflex irritation of the pneumogastric, due to vaso-motor changes in the nasal tissues, (MacKenzie, Hack, Herring, etc.,) or to any pathological conditions causing peripheral irritation, such as polyps, adenoid tissue, enlarged tonsils, elongated uvula, etc., (Tørnwald, Hack, Lublinski, Heting, Schnitzler, Fræ, Tissier, etc.)

I have seen quite a large number of such cases, due to these same causes and cured by their removal. These cases have been sent to me for various reasons, except the true one, as there was no suspicion of a reflex element in the trouble. In some I have relieved a cough of years standing by a very short term of treatment.

Laryngo-spasm is also sometimes a motor neurosis of the same origin, especially in the absence of laryngeal changes, (Hack, Schadewald, Hering, Hoffman, Sommerbrodt, Elsberg, Bobone, and others,) and as a result of the spasm could end in so-called laryngeal vertigo or laryngeal epilepsy, (Joal, Hack, Massei, Michel, Hering, Gennaro and others).

At present I have under treatment a case of reflex cough with laryngismus stridulous in a young lady, 16 years of age, in whom the spasmodic and croupy character of the cough disappeared after the first operation for removal of *adenoid tissue*.

Spastic, or nervous aphonia, is sometimes of the same causation. Bobone has recorded two cases due to nasal polyp and to turbinated hypertrophy. Hering also has recorded three cases—Baratoux one—all cured by the nasal treatment. In my own experience I have seen but one such case, in a middle aged woman with chronic rhinitis, who also suffered from uterine trouble. The aphonia had lasted for some months, but entirely disappeared after a short treatment, and amelioration of the nasal disease.

Chorea, (called delirium of the sensori-motor ganglia,) the supposed seat of the disturbance being in the corpus striatum; *epilepsy*, (leaving out possibly the idiopathic form); *melancholia*, (recurring attacks of short duration); *vertigo*, being all dependent on temporary disturbances of the cerebral circulation, which is directly controlled by the superior cervical ganglion, could as readily be caused by the reflex motor changes brought about by the irritation of the peripheral filaments of the 5th pair in the nasal mucosa, and transmitted to the superior cervical ganglion and thence distributed, the peculiar expression of this vaso-motor disturbance being in the parts enervated by the weakest ganglion, or the one most apt to receive reflex impressions.

Dr. Geo. Stevens has shown that the same disturbance result from insufficiences of the ocular muscles, also reflexes in the domain of the fifth pair.

Allow me to record the following cases in point among many such in my case book:

Case 1.—*Chorea*: A young girl about 10 years of age with constant facial contortions and other choreic movements, of more than 18 months duration, was brought to me to see if they could possibly be due to any insufficiency of the ocular muscles, her physician being acquainted with Dr. Stevens' researches.

No such defect existed. I suggested the post-nasal cavity as the possible seat of the irritation. She had enlarged tonsils faucial and pharyngeal (adenoid tissue). The faucial tonsils were removed one day, and the adenoid tissue the next; result, immediate cessation of all choreic movements and muscular spasms. Scared them out of her, as a doctor friend remarked, but the result speaks for itself.

Case 2.—*Epileptiform Seizure:* I was called into consultation by a physician in a case of œdematous conjunctivitis, in a young man 28 years old, coming on rapidly and apparently without cause, the swelling so great as to threaten destruction of the corneæ. After a few days treatment the case improved and soon recovered.

Some weeks later the same condition recurred as suddenly, and with greater violence. It was then noticed that the attack was co-incident with the appearance of the physiological effect of iodide of potash, which he was taking at the time, and the physician then recalled that the first attack had come on in the same way. I suggested that the eye trouble was probably a reflex disturbance from the nasal irritation.

When he recovered an examination of the nasal cavity showed the presence of large post-nasal hypertrophies of the lower turbinated tissues and a mass of adenoid tissues as well. The turbinated hypertrophies were removed by the galvano cautery snare without any trouble following, but when I removed the adenoid tissue, which was done in two operations, both were followed in a few hours by *a hystero-epileptic condition* beginning with intense headache, and culminating in profound unconsciousness with muscular spasms, lasting for several hours.

In this condition the head and face were suffused the ears purple, the eyes wide open, bloodshot, and devoid of sensibility, the extremities were cool and clammy, at times there were convulsive movements of the muscles, and he would tear his hair, but the temperature, pulse, and respiration were nearly normal. He had never had such attacks in his life, and both times they were produced by the irritation resulting from the operation at the vault of the pharynx.

If such reflex phenomena could be brought about by artificial irritation, it is reasonable to suppose that when we meet with similar epileptiform seizures the cause *might be* an existing irritation in the same locality.

Case 3: A lady who had suffered for years from a complex symptom known as neurotic phenomena, pain in limbs, head and chest, muscular cramps of the extremities, paralyses of motion, and sometimes unconsciousness, Such symptoms, as for want of a better term, we have usually denominated as hysterical. The cause was sought every where. The distinguished Anstie of London was consulted; Dr. Marion Sims

examined the case, and could give no solution ; Dr. Hammond thought irritation about the spinal column and base of the brain might account for it, but no treatment availed anything, and no one could artificially produce the symptoms. Her husband, a physician, consulted me as to the possibility of these symptoms being of reflex nasal origin.

Artificial production of the phenomena was suggested as the best way of answering the question, and *without the knowledge of the lady*, so as to bar all mental element in the trial, the experiment was made.

Result: Irritation of the anterior nares gave no symptoms, but when the probe was applied to the posterior part of the turbinated structures and septum ; the pain and cramp were brought on, and irritation of the pharyngeal vault produced paralysis and partial unconsciousness. I found turbinated hypertrophies, thickening over the septum and adenoid tissue. Treatment has been slow and difficult because any local irritation brought on the symptoms, but the shrinkage of the hypertrophies and partial removal of the adenoid tissue has resulted in gradual and such marked improvement that I expect to get a perfectly satisfactory result.

All of these cases exemplify my remarks, and this last one especially so. It was referred to every cause but the true one, and the nose was not even suspected until recently. It is a case exemplifying various reflexes from the nose. The pain in the arms, forehead and chest (sensory neuroses) the cramp of the muscles of the hands and feet, (motor neuroses) the general paralysis and unconsciousness, (vaso-motor neurosis) disturbance of cerebral circulation.

The artificial production of these neuroses by irritation of the nose, and upper part of the pharynx, and the amelioration of the condition of the patient by local treatment, is evidence sufficient of the reflex character of these manifestations.

If we bear in mind the intimate connection between the lymphatics and blood supply of the nose, and brain, it is an easy matter to understand how great vaso-motor disturbances in the nose could bring about a corresponding change in the cerebral circulation. Moreover, the resulting engorgement of the nasal tissues often presents in such cases, or adenoid growths, etc., could bring in another element of disturbance the prevention of the flow of lymph from the brain by obstructing the lymph channels between the pia mater and nasal mucosa.

According to Elsberg, and latterly Guye, of Amsterdam, this could bring about dullness of mind, loss of memory, inability to study, etc.

I have a case of a clergyman, who stated that since the removal of the adenoid tissue from the pharyngeal vault his ideas are clearer and his memory, which was defective, is much better.

Migraine or sick headache, first denominated a neurosis by Dr. Geo. M. Beard, has also been demonstrated to be caused by intra nasal changes, and cured by local treatment. Hack, Sommerbrodt, Gretze,

Schæffer, Hering, Ziem, and others, have reported about 60 per cent. to 70 per cent. in such cures in something over 300 cases.

Reflex eye troubles, (glaucoma, conjunctivitus, vitreous opacities, etc.,) and expohthalmic goitre, are circulatory disturbauces that might readily be induced by the reflex vaso-motor changes emanating from irritation of the fifth pair in the nose or throat.

Lennox Browne and others have recorded cases of glaucomatous symptoms entirely relieved by the nasal treatment. Hack, and others, cases of vitreous opacities (Mouchee volantes.) Hack and Lennox-Browne have also recorded cases of exophthalmic goitre so caused and so cured. I have seen several cases of recurring conjunctivitis of the same causation, and intractable to all treatment, until the nasal affection was relieved. Greuning, Bev. Robinson, Cheatham, B. Frænkel, and others, have had the same experience.

Dr. Seiler and others have reported another form of vaso-motor disturbance due to intra nasal changes, viz: Acne, erythema and other cutaneous affections of the nose, and relieved by the intra nasal treatment.

G. Hunter, MacKenzie and Fineke have reported cases of facial erysipelas due to chronic rhinitis. Why not? I have seen an application of chromic acid to the origin of nasal polyps cause redness and swelling to the out side of the nose, and neighboring integument; also removal of polyps followed by facial erysipelas, and the same result from the too energetic use of the galvano-cautery.

Latterly Lennox-Brown has shown the connection that exists between enlargement of the follicles at the base of the tongue, and that peculiar neurosis known as "Globus Hystericus." Heyman has already shown that they also caused larygeal dyspnœa; Seyfert has seen asthma from the same causation, and Swain irritable cough with occasional dyspnœa from irritation of the epiglottis. In this connection I have had several interesting cases, one of them a case of dyspnœa, and dysphonia due to enlarged follicles of the tongue, pressing on and irritating the epiglottis, in a young man, who was under treatment at the time, for enlarged tonsils and nasal thickening, and in this case the spasmodic dyspnœa was alarming and seemingly dangerous.

The tongue received its nerve supply from the fifth pair, the hypoglossal and the pneumogastric, and it is not unreasonable to look for similar reflexes from this location, to those from the naso-pharyngeal mucosa.

Special sensory neuroses, such as supra-orbital neuralgia and other headaches; tic-doloureux, eye pain, and ear ache have been demonstrated as of reflex origin from irritation of the peripheral branches of the 5th pair in the nose and throat. Troutman alone reports 87 cases of supra-orbital neuralgia from enlarged tonsils and all cured except two by local treatment.

I have also reported in our State Society proceedings, and elsewhere, cases of constant headache, tic-doloureux ear ache, and eye pain cured by the treatment of the nose and throat.

Operations for the removal of adenoid tissue frequently cause sick headaches as a reflex result of the local irritation.

Now, whilst my experience makes me accept the theory of the reflex producing power of the mucosa of the respiratory tract, I do not think that the origin of the reflexes should be always sought in the naso-pharyngeal mucosa. In the absence of other pathological conditions that are known to induce the symptoms manifested, and especially in some of the obscure disorders recorded above it must be universally admitted that a great step in advance has been made when it was discovered that they are sometimes at least reflexly produced by intra-nasal and pharyngeal changes.

It is *one among other causes*, and ought not to be over-looked by a conscientious physician when searching for the origin of the trouble.

The presence of marked intra-nasal changes, of sensitive parts of the nasal mucosa, of adenoid tissue, granular pharyngitis, of enlarged tonsils, etc., ought at least to awaken suspicion that the trouble might be due to these abnormalities, and that their cure might get rid of the supposed reflex phenomena.

The restoration of the naso-pharyngeal mucosa to a normal condition will be of great service to the patient, even if this result should not cure the reflex condition.

TREATMENT.

At first the treatment suggested by Hack, Frankel, MacKenzie, Boe, Sommerbrodt, Sajous, and others, was the galvano cautery, the destruction of the reflexing producing area, by the cautery, so as to do away with the peripheral source of irritation, and thus prevent the production of the reflexes. Later, Hering, Bosworth, and others, suggested chromic acid and glacial acetic acid as the best means for this purpose. Other methods of treatment have been suggested, and latterly some observers, notably, MacKenzie, have come to the conclusion that, as the main difficulty seems to be in the reflex centres, constitutional treatment to allay their excitability was the only reliable method.

Out of this diversity of opinion the conservative observer must come to but one conclusion, as I have from my experience, which is not a limited one, that every means to allay the local peripheral irritation must be made use of, whilst at the same time all available constitutional measures must be tried to reduce the central excitability of the nerve centres.

Wherever there is good ground for supposing the nose and throat to be the starting point of the reflex phenomena, my rule is to remove all abnormal growths, such as turbinated hypertrophies, thickenings of the

septum polyps, adenoid tissue, granulations in the pharynx, enlarged tonsils, etc., whether by the galavno cautery, cold snare, knife, forceps, chromic acid, or otherwise makes very little difference; in the hands of an expert none of them ought to be abused.

The craze about the galvano cautery has no doubt resulted in much harm by its improper use by inexperienced and unskillful operators, who do not know how or when to cauterize.

Possibly it has had its greatest field in *hay fever*, and the results have been very varying. Many operators have given it up entirely because of their non-success in this trouble. Sajous says he was discouraged by his first attempt, but afterwards found that his failures were because he did not cauterize deep enough. Dr. Roe reports 22 cases of hay-fever without failure from deep cauterization.

I have met with perfect successes and partial failures with it in hay-fever and asthma, *where the pathological conditions were such as required its use.*

Possibly my failures were because my cauterizations were not deep enough, but in every case there was sufficient amelioration of the symptoms to convert the most unbelieving patient to faith in the method of treatment.

Hay-fever patients ought to go under treatment about one month prior to the date of their attack.

Aborting the attack will certainly demonstrate the efficacy of the treatment; but I do not rely entirely on the local treatment only, every patient being put on such internal medication as their peculiar diathesis or accompanying disorders may require.

In asthma each case must be treated according to its special symptoms. I do not know any trouble that requires more judgment and observation than reflex asthma. The mere local treatment of the nasal condition is not everything. The name of the remedies is legion. Morphia, atropia, chloral, bromide of potash, nitrite of soda, quebracho, asafœtida, antipyrine, etc., *internally* with *inhalations* of pyridine, nitrite of amyl, chloroform, stramonium, belladonna, etc., during the attack, and nux vomica, quinine, arsenic, ergotine and other tonics, and nerve sedatives in the intervals, will give some idea of the variety of treatment applicable to different individuals.

The main point in all cases of reflex phenomena apart from the local treatment of reflex producing area, by surgical measures and local applications, is to combat the neurotic tendency and central excitability. The gouty and rheumatic diathesis must be treated, constipation prevented, the digestion improved, the evils of a sedentary life and close mental occupation neutralized by ample out door exercise, and the strictest hygienic precautions observed.

CONCLUSIONS.

From this resume of the subject, and my own experience, I should conclude:

1st. That the reflex producing power of the mucosa of the respiratory tract is not limited to any one part.

2d. That these reflexes arise primarily from irritation of any part innervated by the fifth pair.

3d. That these reflexes can not be produced without inherent weakness and excitability of the nerve centres.

4th. That some of these neuroses, especially asthma can arise secondarily from irritation of other parts of the respiratory mucosa from the chronic vaso-dilator changes caused by the recurrences of the primary irritation when once the train of symptoms has started, and that this explains the failure to cure such reflexes by *local* treatment when they have been of long standing.

410, E. Grace St., Richmond, Va.

REMOVAL OF A MESENTERIC TUMOR BY ABDOMINAL SECTION, WITH RECOVERY.

By Cornelius Kollock, A.M., M.D., Cheraw, S. C.

(Read before the Medical Society of the State of North Carolina at Fayetteville, May 8, 1888.)

On the 6th of January, 1888, I was consulted in the case of J. H. G., a white boy, aged 14 years, small of his age, pale and cadaverous in appearance, general health very bad, appetite and digestion much impaired, constipation almost continuous. For the last six months there has been more or less fever almost every day of a low type. There was a good deal of distension in the right umbilical region. The distension was somewhat conical in shape, and seemed to incline to the right side. Fluctuation was very perceptible; the wave-tap being unusually strong.

At this examination of the case the following history was obtained from the parents of the patient and the attending physician. While riding in a heavy two-horse wagon on the 20th of May, 1886, the horses took fright and ran away. The patient, in attempting to get out of the wagon, fell between the wheels, and the hind wheel passed over his body, bruising the skin and muscular tissues of the abdominal walls very much. According to the statement of the parents and attending physician the wheel of the wagon passed obliquely over the body, contusing the parts in the center and on the side next to the liver, more than those on the opposite side. As the wagon was very heavy and the horses moving rapidly, the contusion must have been deep, extending to the adjacent viscera. Although there was much suffering at the time of the accident, and great tumefaction and tenderness of the parts for some days afterwards, the patient was not confined to his bed or room for any great length of time. In the course of a month, after all signs of the injury had disappeared, the general health began to fail, and there was soon evident fullness over the region of the parts injured. This continued to increase gradually till I first saw the case on the 6th of January, 1888, nearly two years after the accident.

As all signs, rational and physical, clearly indicated the presence of a cystic growth, I decided at once upon an operation, that seeming to be the only procedure that promised radical relief. I first

introduced a large aspirating needle, but the fluid was so thick only a small quantity could be obtained in this way. The patient now being thoroughly under the influence of chloroform, an incision of three inches in length was made, extending obliquely, from a point near the pyloric orifice of the stomach towards the umbilicus. Being thus enabled to introduce my fingers into the cavity, I learned the size, situation and points of attachment of the tumor. I am not quite sure that I am correct as to the pathology of this growth. It seemed to be an exudation cyst, composed of double folds of peritoneum, lined with a fluid-secreting membrane. The membrane lining the sac was rough, corrugated and thick, resembling the inner walls of the gizzard of a fowl. Over the tumor lay the omentum, which adhered to its surface and also to the peritoneum; and the folds of the omentum adhered together, so that the tumor was attached to the anterior portion of the peritoneum by the intervention of the adhering omentum. Posteriorly it was attached by a sort of pedicle, thick, broad and about an inch and a half in length, to the right side of the spinal column, a little above the kidney. This pedicle was made up of a peculiar organized tissue, filled in with blood-vessels and lymphatics. A trocar was now introduced, and a thick, dark and greasy-looking fluid, with an admixture of pus, and what seemed to be bloody serum, was drawn out. None of the adhesions were very firm—all were easily broken up.

Fearing the numbre and caliber of the vessels necessary to the support of this mass would be found to be large, and that extra precaution should be exercised to guard against secondary hemorrhage, I first applied strong clamps to the pedicle before dividing it. Where the pedicle was cut, two large arteries presented their open mouths. They were drawn out and separately ligated with strong white silk ligatures. Not wishing to take the slightest risk of secondary hemorrhage, the mouths of the vessels were lightly touched by the actual cautery.

The cavity being thoroughly cleansed with hot carbolized water, the opening was closed by five silver sutures, secured by shot. The dressing was light and simple, consisting of bats of salicylated cotton and a compress, supported by adhesive strips. The incision healed by first intention, and the sutures were removed on the seventh day. The patient made a quick recovery. This tumor weighed nine pounds.

It is now about four months since the operation and the patient's health is excellent. Appetite and digestion are good and the boy is bright and cheerful; the cadaverous look is replaced by a clear and ruddy complexion.

I must think that the injury sustained by this accident was the cause of the tumor, for it made its appearance so soon afterwards, and just at the point where the wheels of the wagon passed over the body of the patient.

There will hardly be a recurrence of this tumor, for there is at this time no indication of anything of the kind. Besides, experience teaches that such growths are rarely, if ever, reproduced. The fact of there being no constitutional feature in the case, and the restoration of perfect health would warrant the most favorable prognosis.

A CASE OF ANEURYSM OF THE AORTA PRINCIPALLY DIAGNOSED FROM THE NERVOUS SYMPTOMS,

By Oscar J. Coskery, Professor of Surgery in the College of Physicians and Surgeons, Baltimore.

(Read before the Medical Society of the State of North Carolina, Fayetteville, May 8, 1888.)

On September 30th, 1885, William D., a plasterer by occupation, was admitted into St. Joseph's Hospital, Baltimore. His history, given by himself, was as follows: Age 32, single, weighed 150 pounds, measured 5 feet 11 inches in height. Had never had any serious illness nor specific disease. Family history good. About ten days before admission, while standing upon a platform, sixty feet from the floor, and trying to put in position a plaster ornament on the ceiling of a church, he felt a sudden pain in the upper portion of his right chest, a sense of weakness that obliged him to sit down upon the scaffolding, and a desire to cough. He coughed twice, and each time expectorated a mouthful of blood. From that time to date of admission had felt "*badly*." He was unable to descend from the high scaffolding for nearly one hour, on account of weakness.

I saw him for the first time on October 1st, 1885, the day after admission. His general appearance was that of a man in good health, but he complained of an obscure pain in his right chest; there was slight cough, but no bloody expectoration, and the most prominent symptoms observed at this first examination were a peculiar brassy voice, a difficult enunciation of words and an absence of pulse in the right wrist. The patient was up and going about the ward.

On October 7th, 1885, at my morning visit, I found him sitting up in bed, coughing spasmodically with a distinctly croupy ring. At times the attacks would continue until he would get blue in the face, and I really feared suffocation, and discussed with myself the advisability of tracheotomy. These fits of coughing were ended with expectoration of some frothy mucus. Under regular doses of Hoffman's Anodyne the spelled passed away in about seventy-two

hours. Only loose râles could be heard over the chest, mostly right-sided.

A month later he had an attack of the same kind, lasting nearly a week, when, on several occasions, I thought he would suffocate. In the meantime he had been helping about the wards of the hospital, only complaining of pain between the shoulders, and still the hoarse voice.

In December, 1885, he commenced to complain of pain in the throat—referred to the upper portion of the trachea—which I, on several occasions, noticed that he grasped with his hand and seemed to want to raise it from its deeper connections.

On January 10th, 1886, he spoke of pain over the right acromion process and running up to the occiput upon the same side. On a careful examination auscultation revealed a few râles over the upper half of each side of chest; but what principally attracted attention was a peculiar *thud*, heard in systole, below the second rib, right side, and at its inner fourth. From this, the peculiar history of the case recounted above, the nervous symptoms and absence of pulse in right radial, the diagnosis of aneurism of ascending aorta was made. Principally, though, I may state, upon the nerve symptoms, as loss of pulsation in the radial artery is common from anomalous distribution, and in this case the normal temperature of the extremity pointed to such a possible condition. Moreover, patient now began to complain of some pain in deglutition, and still of discomfort between the shoulder-blades.

From now to March 1st, 1887, the note-book says that, with the exception of occasional attacks of what could only be termed acute bronchitis, of the almost continuous pain in the regions above referred to, of the peculiar tone of voice, of the odd sound synchronous with the systole of the heart, but above and to the right of the base of the heart, there could be seen very little alteration in the patient's condition beyond the facts that his nights were becoming restless from pain, and that he was losing some flesh. Up to this date, also, eighteen months from his admission, he had been, with a few intervals, acting as assistant ward-master.

About the 5th of March, 1887, he began to complain of intense neuralgic pain, referred to the course of the internal cutaneous nerve of the right arm. This was soon followed by the same kind of pain upon the outer side of the arm, but greatest at the elbow.

The other nerve symptoms still continued. During April pain came on in the forearm, and by the 1st of May the whole upper extremity of the right side, down to the finger-tips, was slightly swollen, so painful as to cause the patient to cry out, absolutely preventing sleep except through the aid of large doses of morphia, and useless; the patient not being able even to lift it from the bed. The hoarseness also became much worse, and the patient's voice sank almost to a whisper.

On June 25th, 1887, or nearly twenty-one months after admission into hospital, a pulsating tumor was first noticed between the first and second ribs of the right chest, near the sternum. In a week pulsation was plainly perceived above and external to the right sterno-clavicular articulation. Soon after such rapid growth of the swelling came on, that I was inclined to consider my original diagnosis as not correct, and to think that I had a small round-celled sarcoma of the brachial plexus to deal with. The increase in size and of pain was observed day by day by the patient, myself and his ward attendants. After great suffering he died on July 29th, 1887, twenty-two months from admission.

At time of death there was an elongated elastic tumor extending from right clavicle to lobe of right ear, about three inches in transverse diameter, and which had caused patient for some days to hold his head to the right side.

Post-mortem revealed the following conditions: On the right side of the neck was an elongated fluctuating tumor, mostly superficial, but, above, partly covered by the *sterno-mastoid* muscle. On section this tumor was found to consist of fluid blood to the extent of nearly one pint, that this blood had torn up the loose cellular tissue of the neck and had partly dissected the superficial muscles from each other. Following this blood-sac downwards, it was found to communicate with a sacculated aneurysm of the ascending aorta, which, bursting into the cellular tissue of the neck allowed of the rapid formation of the cervical swelling, which made me think my diagnosis of long before might be incorrect. This sacculated aneurysm was a false one, capable of containing about two ounces of fluid and partly filled with decolorized blood-clots. Besides the above there was a small *true* aneurysm of the ascending aorta. There was also complete erosion of the first and second ribs.*

*Specimen shown.

There are several points in this case that may be discussed. The first is the feeling of something having given way in the chest, and the slight spitting of blood. This symptom I have seen in another case, somewhat similar, and acknowledge my inability to explain. The second is the absence of pulsation in the arteries of the right upper extremity so many months before any tumor could be detected. So long as the aneurysm remained small, surely sufficient blood should have gone into the right *subclavian* as to have given *some* impulse to the vessels beyond; but there certainly was none. One other case I have seen where absence of pulsation in the arteries of the right upper extremity was the only symptom, and where the patient died two weeks from date of examination of a sacculated aneurysm which burst into the gullet. The specimen is in my museum.

A third point of interest was the peculiar impulse felt by the ear at the base and to the right of the heart. This symptom corresponded closely to the "diastolic shock," as described by former writers, and which Dr. Douglas Powell found present in fourteen out of thirty-six cases,* except that it was plainly heard only at the time of ventricular contraction, and did not follow it. This may be explained upon the hypothesis that the aneurysm was still small, and the opening into it very free, allowing the blood to pass directly in, instead of regurgitating, as it is supposed to do in order to produce the "diastolic shock."

The exceedingly slow growth may be supposed to have been due to the probability of its having been originally a true aneurysm, as is to be seen in the other sac in the specimen shown—that the coats of the artery held well for sometime, but that eventually they gave way, and then the tumor grew more rapidly.

Of the treatment I can only say that everything in the shape of constitutional treatment that could be thought of was tried—potassic-iodide, in large and increased doses to the stage of iodism, perfect rest in bed, with and without the modifications of Valsalva's method, and depletion, without any perceptible impression. Operative interference was neither undertaken nor desired by the patient.

*Vide Reynold's System of Medicine, Vol. II., p. 848.

PRELIMINARY ENQUIRY INTO THE CAUSES OF DEATH IN NORTH CAROLINA, AND SOME SUGGESTIONS ABOUT THE FUTURE OF PREVENTION.

By Thomas F. Wood, M. D.

(Read at Conjoint Session with the State Board of Health.)

Sanitary reformation to be permanent must be founded upon the conviction of insanitariness, and to convince a community of insanitary conditions we must have the figures and facts which have been carefully and honestly collected, intelligently recorded, digested, and interpreted. So then we at the very outset meet with the difficulty as regards our State at large, of a lack of sufficient information of vital statistics to make any but preliminary, but we trust practical deductions.

Few towns in the State have kept records of death until since the State Board of Health was organized, with the exception of Wilmington, and death certificates were made compulsory there in 1873. Since then Charlotte, Asheville, Durham, Fayetteville, New Bern, Raleigh, Goldsboro, Henderson, Oxford, Washington and Tarboro. These towns have made their work regularly, and I believe conscientiously.

The county reports are deficient, and necessarily so, as the Superintendent of Health, who is required to collect certain items relating to disease and death, must rely upon the reports sent to him, and in very few counties have physicians been able to view the matter of reporting to the Superintendent of Health as of sufficient moment to take the small trouble necessary. More education of the public, more harmony among the profession, and money to pay for the work will one day bring about a system of vital statistics, such as that of New Jersey, Michigan, Rhode Island, and other States. Although county reports are not founded on knowledge of actual numbers of death, still, every Superintendent has means of knowing when any of the diseases dangerous to the public health exist, and in general terms to what extent. A few reports are mere perfunctory dashes of the pen, bearing upon their face, in the manner of chirography, a hurried guess of the state of things. In the main, though, one can get a pretty fair knowledge of the nature of diseases prevalent in the State by such information as we now possess.

For convience, let us divide the State into natural sections after the plan marked out by Dr. M. A. Curtis, the late distinguished botanist of our State, in his* "Woody Plants of North Carolina, into *Lower, Middle and Upper.*" "A line drawn from Blakley on the Roanoke in

*Geological and Natural Survey of North Carolina. Part III, Botany, &c. By Rev. M. A. Curtis, D.D.

the direction of Cheraw on the Pee Dee, will nearly indicate the western termination of the Lower District; although the actual boundary limit between these two is as irregular as a line of sea coast, which, very probably, this once was." "The Middle District reaches westward to the base of the Blue Ridge," and the Upper Dtstrict all west of, and including the Blue Ridge mountains. The Eastern Section is distinguished as the region of the long-leaf pine; the Middle Section as that of the oaks, and the Western a flora varying with every hundred feet of elevation, including Firs and Ferns and Mosses and Lichens. The difference of elevation between the mountains and the sea-coast, according to Dr. Curtis, "occasions a difference of vegetation equal to 10 or 12 degrees of latitude." The influence of these divisions, making a very varied topography, is easier to study than the habits of life of individuals, farmers, hamlets, villages and larger towns. The study of all of these influences on the career of a life must be left to the future, and will not be complete until after studying the drainage, ventilation, heating and water supply, habits of cookery, indulgence in stimulants and tobacco, and the methods of labor, and intervals of recreation, are patiently considered.

The population of this State is remarkable in many respects. The white population, now a homogeneous whole, has not been varied by the influx of foreign inhabitants since the ante-revolutionary period, (1775,) the foreign population being about 5,000, according to the census of 1880, which is smaller than that of any State in the union, except Florida. While large numbers of our population have emigrated to Southern States, the bulk of the population have little of that restless desire to go prospecting in the outside world which marks the northern and western people. When the war broke out the bulk of our adult population in the army saw more of the outside world in their marches with the army of Northern Virginia than they had ever seen before, and most of them when they reached Carlisle, in Pennsylvania, were farther away from home than they have ever been before or since. Unlike other States we have no large city where the bulk of the population visit on business or pleasure, all their patronage being bestowed on the nearest village to them; no metropolitan ideas of fashion or manner of living enter into their daily life. The greatest change is in the manner of life of the negro. Emancipation virtually emptied a foreign population into our towns, for the negro cared for in the cabins of the master under rules of strict personal government, could be commanded to do for his well-being, while the emancipated negro considered that a home apart from the whites was the essence of personal and political freedom. To live in squalor, packed in small windowless rooms to a degree that would nauseate a white man, and drive sleep away effectually, is a condition of perfect comfort. In sickness trusting to any chance remedy brought to him, regarding his disease

as a matter of little concern to himself, but as a matter demanding service from the former white master or his present white employer, so firmly had this taken possession of his being while a slave. Personal cleanliness utterly neglected, except as to the face and hands, and change of raiment; confined in most cases to the putting on of fine cast-off toggery for Sunday. Rushing into contagious diseases with stolid indifference, and herding with each other during epidemics with helpless fatality. Small-pox is a disease, which vaccination causes, in their belief, because they know that the white people vaccinate during the prevalence of small-pox, their blind deduction being that it was the cause. Syphilis, which was rare among negroes as slaves, became the most common of diseases. Promiscuous herding of the sexes spread the disease with fearful rapidity. A negro man applying for treatment for chancre only desires, and he has not improved any to this day, to be relieved of the discomfort and inconvenience of the local sore, regarding it only as a barrier to further indulgence. In all essential respects, therefore, the negroes were and are a foreign population, below the people of any nation in decent instincts, and elevated from the condition of native Africans by the contact with the whites, entirely at the expense of the latter, and as burdensome in many respects, as the old man of the sea was to Sinbad. The most patient and valuable of all laborers in a hot climate, the most tractable and easily influenced for good when segregated among the whites, when herding among themselves with no light but that of their own leaders, drifting always away from the good. A town, therefore, which has twenty thousand inhabitants, more than half of which is of negroes, represents a lack of thrift and a lack of intelligent hygienic surroundings, that really discounts the white population. In speaking of a town of this sort as compared with one wholly of whites, numerical estimates are entirely misleading. These observations are preliminary to what we have to say of the prevalence of diseases by sections.

In general terms we can say that malarial fever, that is the paludal or swamp fevers, abound in the eastern sections, or region of the long-leaf pine, that it is less abundant in the middle sections, finding its greatest intensity along the river and creek bottoms to the foot of the mountains, and that in the mountains malarial fever is not common. Almost the reverse of this applies to typhoid fever. Taking into account the difference in the density of the population—it being sparse in the mountain region leaving out such centres as Asheville—and denser in the east, except on the immediate coast line—typhoid fever not only finds its highest intensity in the mountain regions as to numbers, but also as to the essential virulence of the disease. In the west we have a type of fever that is generally regarded as contagious by the people as well as by the doctor, in the east not regarded as contagious in any degree. In the west typhoid is *the fever* in the common

parlance of the people ; in the east *the fever* is bilious intermitten or remittent, and in the east—certainly I can speak of Wilmington—typhoid is the fever of acclimation of the young German population.

Pneumonia is general, but more marked in the middle and western sections.

Diphtheria is all but universal, but like typhoid fever, abounds most in the middle and western sections. According to the digest of the 10th census as represented after the graphic method by Dr. Billings, we give the following : In the *East* the *deaths of diphtheria as compared with the total deaths from all causes* was under 20 per thousand, while in the middle and west 40 to 59 per thousand.

Croup is also given upon the same authority, in the east under 20 per thousand, middle 20 to 29 per thousand, west 60 and over per thousand.

Diphtheria by groups of counties may be best understood by the following :

Group composed of Guilford, Randolph, Chatham and Harnett 100 and over per one thousand.

Group composed of Pitt and Greene, respectively, 60 to 79 per thousand, 80 to 90 per thousand.

Group composed of Lincoln, Gaston and Burke, respectively, 100 and over for the former, and for the latter 80 to 99.

Group composed of Cumberland and Moore 40 to 59 per thousand.

Group composed of Surry, Stokes, Yadkin and Forsyth 80 to 99 per thousand.

Group composed of Cherokee, Clay, Graham, Macon, Jackson, Swain, Transylvania, Henderson, Buncombe, Madison, Watauga, Mitchell, Yancy, Caldwell, Alexander, Catawba, Iredell, Rowan, Mecklenburg, Stanley. Anson, Montgomery, Richmond, Robeson, Bladen, Sampson, Duplin, Pender, Onslow, Jones, and New Hanover, in some degree contiguous and representing largely a lower tier of counties, had a mortality of 20 to 39 per thousand. Single counties, Davie, Catawba and Union, and a group composed of Granville, Franklin, Nash, Wilson, Edgecombe, Johnston, Halifax, Martin, Bertie, Beaufort, Lenoir, Craven, under 20 per thousand.

In these last named counties occurred the minimum of diphtheria death. It will be observed that deaths from croup bore the same ratio to deaths from all causes, as in the case of diphtheria.

Scarlet Fever was not reported in any part of the State, and in the last decade the cases which have occurred in 1885, 1886, 1887 and 1888, were mostly reported in Wilmington.

Enteric Fever : In the east 35 to 44 per thousand, to 45 to 54 per thousand in the west.

Malarial Fever : In the east, 50 to 69 per thousand, to 30 to 49 per thousand in the west.

Cousumption: In the east deaths are 75 to 99 per thousand, in the west under 75 per thousand.

Heart Disease and Dropsy: 70 and over in the east and west, and in the middle 60 to 69 per thousand.

Diarrhœa Diseases: 20 to 39 per thousand in the east, 40 to 59 per thousand in the middle, 60 to 79 per thousand in the west.

The *Birth Rate* per 1,000 living in all sections is the same, 30 to 59 per thousand, and corresponding with Virginia, Tennessee, and South Carolina. The Birth Rate per 1,000 women between 15 and 50 years of age is 150 to 169, which corresponds with the States above named.

Deaths in Child Birth : In the east and middle the deaths in child birth are 15 to 19 per thousand, and under 10 per thousand in the west.

Still Born : As compared with total from known causes, in east 15 to 19, west and middle 25 to 30.

Cancer : In the east and middle 10 to 15 per thousand, in the west 15 to 20, and this item of the causes of deaths sinks into insignificance as compared with the New England States.

Old Age : Distribution as compared with total deaths from known causes: In the east under 10 per thousand, in the middle 10 to 14 per thousand, in the west 15 to 19 per thousand.

It would be useless to attempt to generalize upon the summary above given, as the record is not full, and the reports made were not always intelligently done, but the general drift of diseases can be observed more intelligently with these data in view.

The record of *consumption* by towns, we can give for nine months only:

Nine towns gave in 9 months the relative mortality from consumption, 40 whites to 81 blacks.

By months: In May the highest mortality attained among the blacks. viz., 16; highest among the whites in November. In November, 8 whites, 13 blacks; December, 6 whites, 6 blacks; October, 4 whites, 10 blacks; June, 5 whites, 6 blacks; May, 3 whites, 16 blacks; July, 6 whites, 2 blacks; June, 5 whites, 6 blacks; April, 2 whites, 10 blacks; August, 3 whites, 6 blacks; September, 3 whites, 8 blacks; April, 2 whites 10 blacks.

The study of the movement of our population, the conditions of life, the causes of death, will for all future time be the important directions in which the energies of our work must be urged. The difficulties are great because very few students are to be found capable for the work, and no considerable impression has been made upon the people—certainly not upon the law-makers—as to the utility of it. This need in now way discourages us, for the road to success has been marked out by Chadwick in England, and all the followers of his lead in this country, and we must come to it sooner or later. True education advances slowly, especially in our State, whose population is largely

rural, and whose needs are far different from those denser communities where chiefly hygienic problems have been worked out at great cost. This progress of time is bringing us face to face with some of the problems which have already been solved in older and denser communities, and at first thought we might believe that we would stand ready to adopt with intense pains-taking the principles established by this well-earned experience. The signs of the times do not bear out this belief.

We observe in our towns that persons are trying the experiments with cess-pools, as though not a word of warning had ever been sounded on this subject. Persons building a new house, desirous of combining all the conveniences compactly to meet the requirements of our present poor domestic service, catch at the idea of water-closets in the house, imitating the suggestion which has come to them in their travels, or being seduced by the ill advice of some unwise architect or energetic plumber, never stopping to inquire how sewerage is to be disposed of, finally accepting a veritable death-trap in a cess-pool. If this is bad in a country where they have freezing weather for three months in the year, what must it be where the temperature of river water goes up in the 80°? as in Wilmington during July and August.

Hardly less fatal is the error of hap-hazard sewerage which is undertaken in some of our towns. A town gets a water supply, bath-rooms and water closets multiply, and properly enough sewer pipes are laid to carry off the waste water and sewage. The sewer is undertaken by a few neighbors, the pipes are laid without ascertaining the correct levels, the pipes become choked, and the householder finds to his sorrow that he has got as good as a cess-pool at the end of his pipes, and then begins a series of expedients to obviate the difficulty, ending, if the householder be a man of common sense, in cutting off the abomination and returning to the primitive method of an old fashioned privy out of doors. Rather than have a water-closet with a cess-pool of faulty sewer as its receptacle, it would be better to do as they do in one of the mountain counties, where an old guide, well known in the Caney region, says that a privy recently erected by Col. M. is the only one known to exist in that region, and there are no water-closets there either. These fatal mistakes are fast increasing in the State, and are far more serious than this sketch makes them.

This water supply is frought with many evils. Singularly enough, as I have many times pointed out the necessity for a public water-supply, does not come from the promptings of the needs of citizens, but from the trade pressure from without. It usually originates after some disastrous fire in the high rate of insurance caused by the lack of sufficient water. Having entered this wedge the convenience of a tap in the kitchen and house wherefrom water can be drawn at will, the convenience and luxury of baths, and the great cleanliness and niceness

of water-closets are argued until the plain old-fasioned folks, to whom all such things are novelties are found to fall in with the suggestion, which, if traced to its origin came from the numerous speculators who are engaged in the manufacture of material used in the construction of such works, generally known as "Pipe Trusts." The original idea of having a public water-supply, which has by this time taken full possession of a steady-going old-fashioned town, has been turned into the best use that the various contractors can make of it, and the innocent public stand off to see a warm encounter between committees of Aldermen and rival supply companies, resulting finally in the victory of the sharpest contractor, and then what? Why the source of water supply is to be decided by a partisan encounter, regardless of scientific investigation, or experience as to quality and quantity, and it may be the final selection of a water so doubtful that nothing better can be devised for it than to filter it.

It is not worth while to multiply the dangers which beset us, enough of them are actually upon us to test the manner and spirit in which other questions will be met. So far we are deliberately repeating the early errors of the past century, which can only be accounted for by the inference that our people are not informed.

Just let us see how we are going to fare in the next ten years. All these towns getting a supply of water will have, after disastrous losses of life and health, a system of sewerage. Then will come into our towns swarms of tramp plumbers, who are driven out of the cities where license laws are in vogue, and the work done in our houses will be shabby, expensive, and exasperating. After suffering innumerable ills, patiently, as our Southern people have by long hardship learned to endure, the public will wake up to the facts in the case. This is no sensational picture, and, indeed, is but half drawn.

Is it not clear then, that the whole population is interested in the future of sanitary work in our State? It is not the physicians, alone, who are to inform themselves and take active measures for the mitigation of disease, the prolongation of life, and the comforts of our surroundings, but every man, woman and child has some interest at stake. It must be almost of necessity that the doctors will take the lead in public and private sanitary matters, because by their education they are generally better fitted to advise, but it is just as great folly to leave it all for them to do, as it would be for an intelligent community to entrust its religious duties to their pastors, ministers or priests. It is a common cause, and involves principles of self-protection, so much so that when one family neglects its hygienic duties the errors do not fall alone upon the transgressors, but just as likely upon their unoffending neighbors.

It is proper, therefore, that efforts should be made to teach the principles of hygienics in our schools, not so much by text-books as orally

by the teachers, who have studied and digested thorough systems of hygienics. There is no time in our short public school terms to take up a thoroughly good book such as that by Dr. Ezra M. Hunt on "The Elements of Hygienics," so that the duty devolves upon the conscientious teacher to make his or her preparations to intersperse a lecture on hygienics into the monotonous curriculum. If these lectures do not degenerate into ill-judged temperance lectures to the exclusion of sound doctrines on other points, it will be fruitful for good with some, at least, of the rising generation.

In conclusion I would say that the future of preventive medicine or hygienics depends upon the education of the masses. If our Mayors, for instance, happen to have no standard of cleanliness, and having only the example of their own town to measure their degree of sanitary duty by, and the masses of the people have no idea of hygienics, and have no good standard of cleanliness, there will be repeated from century to century the average condition of insanitariness so often seen in our towns. Public places carefully policed, but the neighborhood of petty tax-payers on the suburbs made a dumping ground for the garbage removed from these public places. How are these reforms to be complete?

I think we can forsee in the not very distant future the adoption of garbage furnaces. The people are going out in the world more, and bringing back home ideas and impressions which they have gained by seeing the condition of other cities, and it will not be many years before they will demand more orderly streets, the destruction of garbage by burning, and the proper construction of sewerage, and the public functionary who is willing to go along repeating the errors of these hundred years past will be supplanted by more intelligent and progressive officers.

We must insist that public hygienics belongs to the people, and those of us who know the principles must make it our duty to impart them, and I can assure any one, be he citizen or citizen-doctor, that the State Board of Health stands ready to aid any effort, however humble, to improve the sanitary condition of the people.

OBITUARY.

Dr. William R. King, of Laurinburg, N. C.

This able and distinguished physician died at his home in Jonesburg, March 8th, 1888.

He was a noble representative of the highest type of the physician. He passed away from the scenes and arduous labors of a useful life, honored by his profession, and mourned by a large community, of which he was a bright ornament.

His interesting family have the sympathy of hosts of friends outside of the medical profession. Whom know Dr. King learned from him a lesson, such as can only be stamped on the memory by coming into personal contact with a man, learned, tried, unselfish, and noble. His motives and aims were of the highest, and he freely conceded to all more than they could have claimed for themselves.

John London Meares.

Dr. Meares was born on the 23rd of July, 1823, and died 13th of January, 1888.

Graduated at University of North Carolina, class of 1844. Graduated at Jefferson Medical College, Philadelphia, in 1847. He begun the practice by entering into co-partnership with that able and distinguished physician, Dr. James F. McRee, Sr. The co-partnerahip lasted for three years, when Dr. McRee retired, and Dr. Meares continued in the enjoyment of a large and lucrative practice until he retired in 1857 and removed to Washington county, Mississippi, in the year 1858, and became a large cotton planter. He entered the army early in the war, and was *Surgeon in chief* of General Bowen's Division for about two years. In 1869 he removed to San Francisco and resumed the practice of his profession. For the past ten years of his life he held the high and distinguished position of *Health Officer* of that city and county.

He brought the efficiency of *Bovine* vaccination into general notice throughout this country, some years ago when small pox was epidemic, and when several thousand persons were vaccinated on an average per day for some time. He thus had the opportunity to experiment in a satisfactory manner, and he published his views and his experimants in his annual reports.

Dr. Hamilton C. Jackson.

Died, from a stroke of paralysis on the 20th of June, 1886, Dr. Hamilton C. Jackson, the youngest son of the late Samuel S. Jackson. He was the attending physician of young Frank Stephenson throughout his long illness, and was unremitting in his attentions, and this was

the immediate cause of his paralysis, although he had felt some premonitory symptoms for some time previous. He was suddenly stricken down at Mr. Stephenson's residence only a few hours before Frank's death, and died in twenty-four hours thereafter. Like the faithful sentinel, he fell at the post of duty, and the very extraordinary spectacle was presented of the dead patient and the dying physician being in the same house. He never recovered consciousness after he was stricken, but died the next night at the residence of his brother, J. J. Jackson. He was buried in the Episcopal church yard by the side of his brother Saml. S. Jackson.

Dr. Jackson was borne in 1836, and was consequently in his 57th year. He had been a practising physician since 1857. He was for many years the county physician, and in January, 1387, was elected County Superintendent of Health. In 1874 he married a daughter of the late Gov. Worth, who with one little daughter survive to mourn their irreparable loss.

He was retiring in his habits, but a most amiable and courteous gentleman, unselfish, kind and good, and affectionate in all the domestic relations as a son, husband, father, brother and friend.

The peculiarly sad circumstances of his death greatly shocked the entire community in which he lived, and excited the heart-felt sympathy of all, as was evidenced by the extraordinary large attendance at his funeral, and the beautiful floral tokens that covered his grave.

Dr. D. J. Cain.

Whereas, The all wise Creator and Preserver of man has seen fit to remove from our midst our former associate, and President of our Society, Dr. D. J. Cain, and take him from his labors among men to his rest in the mansions prepared for the good ; and while we feel sensibly the great loss we have sustained, the loss to his family and friends, we know that what the Almighty does is right, therefore we bow with reverence to the hand that smote him.

Dr. Cain was born in St. John's, Berkeley, S. C., in 1817—graduated from the South Carolina College in the class 1835, and received his medical diploma from the South Carolina Medical College in 1838. He then spent four years in France in further studying the art and advancement of science in the profession of his choice.

He had an extensive practice in the city of Charleston before the war, and was for several years editor of the *Charleston Medical Journal and Review*. He was also connected with the Main Hospital, and lecturer in the Charleston Preparatory Medical School.

After the war he removed to Asheville, spent a few years in Brevard, then returned to Asheville, where his high-toned Christian character and skill as a physician won for him a high reputation among his brother practitioners and the community generally. His great care

for the poor, non-paying patients was noticed by all who knew him. Too much cannot be said of this noble and honored man. He was as near always the same in all his intercourse with physicians and people as any man we ever knew. Therefore,

Resolved 1st. That in the loss of Dr. D. J. Cain the medical profession has lost one of her most honored and useful men.

Resolved 2nd. That this Society has lost one who was esteemed and honored, and who was for two years President of this Society.

Resolved 3rd. That the members of this Society wear the usual badge of mourning for thirty days in honor of toney he loved.

Resolved 4th. That we extend to the family of the deceased our profound and heart-felt sympathy, and as a token of our regard for the deaceased that a copy of these proceedings be sent to his widow, and that we ask the city papers to publish the same, and that it be referred to the obituary committee of the State Society.

W. J. Hillird,
J. A. Reagan.

Dr. James F. Long.

Dr. Long was the youngest son of John Long of Washington, N. C., who married Miss Mary Perry, of Plymouth, N. C., in the year 1817. The parents of the brilliant physician resided in Plymouth, where the father was engaged in merchandise, until 1862, when they removed to a farm in Beaufort county, carrying with them a small family of children, consisting of the oldest son, John S. Long, Esq., the subject of this memorial, and two sisters, both of whom married and are now dead. In 1839 the family removed to Washington, where the father again engaged in merchandise, and at his death in 1860 was one of the most prosperous, influential and highly respected citizens of that beautiful town.

The Longs, from the most reliable family accounts, are descended from an old English Bishop, one or more of whose sons came over to Maryland and settled early in the 17th century. A number of this family emigrated to Nansemand county, Va., and from there three brothers are said to have emmigrated to North Carolina early in the last century, and settled in Halifax, Alamance or Randolph and Chowan The Longs of Halifax, by intermarriage and judicious investments, early became prosperous. The other branches of the family rose slowly and surely, until now they are among the most prolific, cultured and energetic people of the State, having furnished distinguished scholars, lawers, physicians and divines among the foremost leaders of public sentiment.

Dr. Long was an infant in arms, having been born on the 17th of February, 1832, when his parents left Plymouth. His education begun in 1840 in Washington, under the best teachers of that day, and his

progress was rapid. At fifteen he begun the study of Latin as a private pupil under the great preacher, Rev. John Todd Brown, whose pet he was, and from whose radiant genius he received much of that inspiration for letters which made him so magnetic, scholarly and attractive in after life. At the outset his deliberate and thoughtful father intended one of his sons for a professional career and the other for his business associate, leaving them to settle the matter between themselves, The older brother left the choice to the younger, who decided for a profession. Afterward he changed his mind, declaring his preference for a mercantile career. At this time the gifted Dr. John Norcum was at the zenith of his professional success in Washington, and being the family physician of the Long family, his wonderful endowments seized the imagination and absolute thoughts of the young merchant completely. Whenever he could command the opportunity he was at the Doctor's office. Then first came into existence that unquenchable thirst to study and practice medicine, which was with him a second nature.

His classical and mathematical learning had been by no means neglected. Under Hathaway and Bogart, both trained school masters, he enjoyed excellent advantages. He read Latin through Cæsar and Virgil, and was well grounded in philosophy and pgures. So that when he commenced the study of medicine he he had already laid the foundation for the highest attainments. He became a student of the Medical College of New York, where he graduated in 1858. Locating at his home among his own people, his ability and skill from the very first arrested public attention. The old physicians, Norcum and Allen, had entered into rest, and Drs. Frank King and David Taylor controlled the practise. But the young doctor sprang at almost a single bound into a lucrative employment, and at the opening of the civil war ranked with the best. His extreme political views caused an abrupt termination to his connection with the practice in Washington. Being one day in the office of one of his patrons, Isaiah Respass, Esq., who was a strong advocate of peace measures, the officers of a Federal gunbort, with Captain Quackenboss at their head, entered and were introduced to him by Mr. Respass. Dr. Long, telling them that they were invaders, refused to acknowledge the introduction. The captain returning to his boat sent up a squad of men for his arrest, but his friends had hurried him from the cene.

Reporting at Raleigh for professional employment in the army he was appointed surgeon of the 53rd regiment under that gallant soldier, Col. Owen. His life in the camp and field, like that of almost all other surgeons, was uneventful, except in tne immediate ara where his talents and qualities were in demand. Ministering to sick and wounded soldiers, such shine in the exciting bulletins of war. And yet Dr. Long by his fidelity to duty, his self-sacrifice for the good of

his own men, speedily undermined a robust constitution, and brought himself into a condition of health necessitating his resignation. And even then but for the warm friendship and generous pleadings of his noble colonel he would doubtless have laid his body to sleep in some lonely Virginia grave.

After resigning from the army he retired in broken and shattered health to Western North Carolina, where he remained until the close of the war. Immediately after which he returned to his former home, where the desolating torch of the enemy had laid all the beautiful places so dear to his heart in ashes, and where he believed there was little hope of brighter and better days.

In 1870 he removed to Newbern, with the material, professional and literary interests of which ancient city he was closely identified to the day of his death. In Newbern he found scientific and distinguished physicians, who by their established reputation and skill held the field against all new comers. It was no easy task therefore for Dr. Long or any other medical gentlemen to acquire a practice in such a community. And for several years he rowed against wind and tide to make a living. But grit, successful treatment of his patients, professional courtesy and refinement, together with his high literary attainments gave him a sure foothold among the people. In the practice of medicine, as well as in his personal relations, he was the soul of honor. He would never submit to an insult, and yet had a horror of hurting the feelings of even the poorest citizen. As an evidence of both his lofty character and his pure professional record, the surviving physicians of Newbern honored him in life and buried him with sorrow. At the elegant supper given by the medical fraternity of Newbern to their brothers at the last meeting of the Medical Association between the classic waters of the Neuse and Trent, Dr. Long was chosen to preside. The scene will long be remembered by many. The famous Virginia surgeon of Stonewall Jackson's memory was present, and many other distinguished medical men. The occasion was one of deep and enduring interest.

As an active member of this Society for many years he made valuable contributions to its medical literature, and enriched the science of medicine with practical and important scientific papers. His excellent paper presented to the Society on the physiological and pathological effects of alcoholic intoxicants upon the human system indicates deep research and much learning, and will remain a monument to his love of science, his fiodness for his profession, and will contribute a standing warning to those who indulge in ardent spirits as a beverage. As orator of the Society at Asheville a number of years ago, his polished and able address on Heredity was alike interesting, charming and instructive, and placed him in the ranks of advanced thinkers. Always eloquent when he prepared himself, the Society never had a better

speaker or a finer orator. No member was more in sympathy and co-operation with the Society in all its rules, regulations, and code of ethics for the improvement and elevation of the profession, for the advancement of science, and for the relief of suffering humanity. A gentleman by instinct, as well as by education and habit, he maintained an honest and high-toned personal and professional bearing and conduct at all times and under all circumstances. This was added to his impatience with, and intolerance of, unworthy conduct, and of trickiness and meanness of all kind, whether within or without the profession. He had no use for unscrupulous and unprincipled men howhowever, only their tongues, sweet their words, or captivating in their smiles and manners. The personification of honor and truth, he knew no guile, was true to friends, to principle and to Society. Modest, reticient, never talking about himself, his life was not so easily unveiled to them who did not know him well. But those who knew him longest and best attest that in his bosom beat a warm, generous, and sympathetic heart, aglow with love of science, progress, education, State, country, and humanity.

For several years before his death Dr. Long had held the position of county physician. None of his able predecessors performed its duties more faithful and successfully. An amazing illustration of this fact is said to have taken place, when a good old colored citizen of Newbern, who acted as sexton for the paupers, applied to the County Commissioners for an increase of pay upon the ground that since Dr. Long's appointment there had been no demand for coffins. In fact, his readiness to visit the poor, even beyond the limits of custom, and his ambition to cover all the ground of even apparent responsibility had much to do with the quick decay of his physical energy at the least.

The confidence of his fellow citizens in both his integrity and talents, was shown by the conspicuous honors which they paid him. He was called more than once to deliver different addresses, where a trained literary mind was absolutely essential to success. And in giving him the presidency of the Neuse and Trent River Steamboat Company, by far the most potential material enterprise of the city, they showed their respect for both his understanding and business capacity.

Dr. Long's death came at last like an electric flash. He had been sitting up all day in his chair, passing a word with visiting friends, now and then, reading a little from a book in his lap, taking an occasional pull at his pipe, and giving brief orders to the servants, when after the first shadows of the coming night had fallen he seemed to go with the sun without any pain or struggle.

Prof. O. F. Manson, M. D.

This eminent physician and distinguished author died at his home in Richmond, Va., on the morning of January 25th, 1888. His health had been feeble for more than a year previous, owing to nervous pros-

tration from over-work. He had been a very laborious man, and a diligent student all his useful life. Such was his great professional devotion and indomitable energy that, with his large practice, he had but few leisure hours, but was all the time, off and on, attending to his professional duties. Even up to the day or two previous to his death he was in his office engaged in arduous professional labor, and responding to calls to visit patients. While thus in active professional harness an apoplectic stroke seized him with the attendant paralysis. Loss of consciousness was soon the result, and in this condition he lingered for about eighteen hours, when death released his noble spirit from his body, and his splended record was finished.

The world owes more to those of independent thought, bold views, and aggressive action, than to any other class of men. Of course such men are always opposed and bitterly assailed. Innovations never fail to entail opposition, and the trials of reformers are fiery and proscriptive, just in proportion to the importance and demand of the reforms proposed. It is generally the case that when a physician of this order of mind, and of devotion to truth, attains distinction by a departure from all methods and the introduction of new and needed forms of practice he meets with storms of opposition, and frequently excites the jealousy and abuse of his companions. And yet how often is it the case that the very men who assaulted his views and methods live to adopt his advice and improvements, and hasten, especially after his death, to pay tribute to his genius, and are proud of his achievements? This spirit of recognition, of bold, independent, aggressive views, and of high order of abilities and accomplishments is strikingly illustrated in the brilliant and successful career of this distinguished honorary member of our Society whose death has excited deep and universal sorrow in the profession of Virginia and North Carolina, and entailed a sad and heavy loss to the profession at large. For a long time his original views, and new methods of practice, in relation to fevers, especially malarial fevers, and the use of quinine in large doses, were overshadowed by an intolerance and wide spread opposition throughout this Southern land. But they have now obtained such a general recognized currency, as being based upon the truths and teachings of medical science and experience, as to rank Dr. Manson prominently among the ablest medical men that this country has produced. This will be the verdict of impartial medical history. Time, which tries all things, has already set its seal of emphatic and general approval upon the medical principles and bold methods of practice which he so ably introduced and illustrated in his laborious and successful practice. It is not alone an expression of warm friendship in the writer, but the language as well, of soberness and truth, to say that in investigation and treatment of our Southern fevers and inflammatory

diseases, few Southern men have in their generation done as much as he has for the advancement of medical science and the relief of suffering humanity. In the language of his distinguished biographer and grateful friend, Dr. Thomas F. Wood, his name will go down to prosterity when the mists of ignorance and prejudice have disappeared amid the blazing sun of truth, "with that of Dr. S. H. Dickson, of Charleston, Dr. George B. Wood, of Philadelphia, and Dr. David Drake, of Ohio."

It is because of the warmth of friendship and an honest desire that this noble man should be properly known and remembered, and shall occupy a deserving place in the medical annuals of this State, which he so tenderly loved and honored, that this tribute is presented. It is based not alone upon my knowledge from an intimate acquaintance of nearly three decades, but the facts connected with his professional career are largely gleaned from sketches heretofore published since his death in the *Virginia Medical Monthly* and in the *North Carolina Medical Journal*. The profession of both Virginia and North Carolina are doubtless ready to express their heartfelt thanks and grateful acknowledgements to Dr. Wood for his feeling and just tribute to Dr. Manson in the last March number of his excellent *Journal*.

As a brief, running account of his early days and eventful life, compiled from authentic publications, and other sources, it may be stated as follows: That he was born in Richmondl Va., October 10th, 1822. His early life was spent in that city. He had passed through his academic and Medical College course at the early age of eighteen years. In 1840 he received his degre of Doctor of Medicine from the medical department of Hampden Sidney Colldge—now the Medical College of Virginia. When nineteen years old he married a daughter of Spottswood Burwell, Esq., of Granville county, in this State, and at once began the practice of medicine in that county. Soon his practice became large and lucrative. His fine qualifications, high intellectual endowment, kindness of manners, captivating address, and professional devotion, won for him, far and near, the character of a brilliant young physician, and a kind-heart, high-toned gentleman. His early habits of study made him a medical scholar, and his whole life showed great fitness for investigation and love of medical advancement. He surrounded himself from first to last with well-selected and large medical libraries, and the best medical journals of Europe and America. He used, with great industry, his excellent opportunities for the clinical study of malarial diseases and pneumonia, and these subjects, as well as general fever, he kept constantly before him all his life. When he died he had the most complete collection of works on malarial literature accumulated from both hemispheres that probably exists in any private library. He, more than any other leader, brought quinine into prominence as a remedy for other diseases than chills and fever,

and was the pioneer in its administration in large doses. He was the first American writer to describe malarial puerperal fever, an honor claimed by Dr. Fordyce Barker at one time, but which he gracefully yielded to Dr. Manson afterwards. In a letter to Dr. Manson from Dr. Barker, the latter magnanimously remarked: "I cordially congratulate you on the fact that, so far as my acquaintance with medical literature permits me to judge, you are the first medical writer who has disscribed this (malarial puerperal fever) as a distinctive disease." From 1846 until the day of his death, his contributions to medical science have been very numerous and very interesting, able, learned, and useful. Among these valuable papers may be mentioned those on "Malarial Fever," "Pneumonia," "Cholera Infantum," "Puerperal Fever," &c., advocating their frequent masmatic origin, the free employment of quinine as a sedative, and extending its use in erysipelas, scarlatina, croup, rheumatism, &c. In high fevers and acute inflammatory diseases, he was a bold advocate of anti-phlogistic treatment, and practiced what he taught. Profound and progressive in his profession, acute as an observer, discriminating in his judgment, thorough as an investigator, he was impelled onwards by the inspirations of his marked genius, and the animation of a discoverer, indifferent to the adverse criticisms of conventional associates, but boldly putting in practice the conclusions of his own fearless mind. His doctrines and treatment, so long contested and opposed, have been steadly gaining ground for many years, and are now generally recognized in the practice of Southern physicians. One after another of his rigntful claims of priority and discovory are now admitted until his discoveries and advances are accepted as the useful and general property of the profession. Thus it is that study, research, and genius, bear their fruits to the advancement of science, and to the healing of the nations. Thirty years ago, one year after he had, as an active member of this body, presented a valuable paper on "Remittent Fever," there occurred the celebrated controversy between himself and another talented member of this Society, now the eminent Professor, W. T. Howard, M. D., of Brltimore, upon the subject of "Malarial Pneumonia." Time has shown that the practice advocated in that original and able paper on Pneumonia by Dr. Manson is correct, and that his theory of the existence of a form of pneumonia having its origin in malarial poisoning is the accepted doctrine of Southern medical men.

Dr. Manson continued to practice in this State until the breaking out of the war, and always with great success. No one stood higher, whether as a polished and accomplished gentleman, a true friend, a thorough North Carolenian, and an able and conscientious physician A devoted member of this Society he was always on the front ranks of the foremost in promoting its interests and advancing its welfare

and scientific character. The honors of the Society were heaped upon him unsought. He became a useful member of our State Board of Medical Examiners, and always had near his warm and sympathetic heart the improvement and elevation of the profession.

But he was an ardent patriot too, and early in the war accepted an official invitation from Governor Vance to repair to Richmond to look after the comfort and health of our North Carolina troops in Virginia. A hospital for North Carolina soldiers was established in Richmond and the Governor selected Dr. Manson as its Surgeon in Chief. Under his devotion, skill and high executive abilities, aided, by the generous governor, and patriotic people of this State, Dr. Manson's "Moore Hospital" became the pride of the State, and a model hospital of the Confederacy. Commissioned as a Confederate Surgeon in 1862 he was subsequently appointed Medical Adjutant by this State with the rank of Major, to afford relief to our troops in Virginia, and he discharged its duties with humanity and faithfulness. No Confederate Surgeon was more patrioiic and human, or discharged his duties with more fidelity and success. In a letter to the writer written two or three years ago by Governor Vance in relation to Dr. Manson and his services during the war, the governor gratefully remarks, that "I regard Dr. Manson a very superior man intellectually and professionally. As a high-toned gentleman, and a man of profound learning, and great kindness of heart, he endeared himself to me greatly during the war. He endeared himself not only to me but to every man, woman and child in North Carolina. His management of the North Carolina hospital at Richmond during the war was able and every way acceptable to me. I consider Dr. Manson as a natural born doctor." Dr. Manson modestly accepted, and turned to good accounts, the frequent opportunities that presented themselves to him during that great struggle for exercising the heroism and humanity of his noble nature Freshly does the writer bear in mind how his handsome face and brilliant eyes lighted up with enthusiasm as he recounted scenes of the war, and alluded with patriotic pride to his own bright Confederate record. Both before and after the war he never ceased to manifest the liveliest interest in this Society and the profession of the State, and always loved North Carolina.

The close of the war finding him in Richmond, he settled there and again resumed private practice. By his superior abilities and great energy of mind and body he worked himself into a large and remunerative practice. Soon he was elected an honoraay member of this Society, and received similar honors at the hands of several Southern States and local Societies. In 1867 he was elected Professor of Pathology in his alma mater, and in a year or so afterwards, on the resignation of Dr. L. S. Joyner, the chair of Physiology was added to his Professorship. Not being in sympathy with certain policies of the

Faculty of the College in 1882 or '83 he resigned his professorship. But the Board of Directors of that institution afterwards elected him an Emeritus Professor in recognition of his merits and serviceable connection with the College. A member of the Medical Society of Virginia at its organization in 1870; he also belonged to the American Medical Association, and to the Richmond Academy of Medicene, until he resigned in 1883, and became an original member of the Richmond Medical and Surgical Society. He was a member of the State Board of Medical Examiners of Virginia at one time. For a number of years he was the able President of the City Council of Richmond, until he declined re-election by that Body. In short, the positions of honor and distinction he filled were numerous, were cordially conceded, and always peacefully borne with much credit to himself.

During all the exhausting labors and consuming cares incident to his official functions and active professional life he found time to indulge his fondness for investigation and writing. He loved to linger amid the attractions of his singularly choice, and valuable library of more than two thousand volumes, and to commune with their authors, ancient and modern, written in different languages, read by him with ease.

Here, and often by the midnight lamp, he thought out and prepared for literary magazines and medical journals, many of his ablest productions. His published writings are voluminous. The more important of his recently published contributions to medicine are "A treatise on the physiological and therapeutic action of the suphate of quinine" an exhaustive volume that has excited at large much attention and criticism, and his well-known "Treatise on malarial hemorrhage," which has likewise secured wide-spread consideration. These elaborate productions were intended to constitute chapters in a large and life-cherished work of this lamented and honored author, "A History of Fevers from the Earliest Times." He had spared no effort or expense in obtaining all obtainable materials and authorities upon this subject and for a number of years had been engaged in preparing this great work for the publisher. This very year he assured his friends that it would go to the press. For the sake of a much needed service to the profession he illumined and adorned, let the large and unfinished manuscript be placed in the hands of some admiring and competent friend for completion and publication.

Not alone in medicine was Dr. Manson learned and progressive. His attainments and accomplishments in other fields of investigation and learning were varied and extensive. He was pure and refined in his tastes, elegant in attire, winning in his manners, manly and dignified in bearing, and withal so responsive to pain and suffering, so noble and ennobling in his broad sympathy and abounding charity, that his merits and virtues entrenched him deeply in public confidence

and assured him, far and wide, an affectionate regard. In the events and character of his life there is nothing to conceal. He never dissembled, but was always honest and sincere of purpose, open, free and generous in nature. His steadfast devotion to right and justice, and his ardent attachments to truth and friends were proverbial traits. He was uncompromising in all matters that he conceived to involve a principle, and a terror to demagogues and them who sacrificed principle, and yet was always modest as well as firm in enforcing his own views. He was possessed of much mental endowments, courage and strength of character, as made him a born leader of men, and a pioneer in measures that advanced science, elevated the profession, and benefited society at large. It is as natural for such men to have enemies as it is for sparks to fly upwards, or for the sun to rise and set.

Dr. Manson was always kind to young men, and especially so to those poor but meritorious young members of the profession who were actuated by high motives, and an elevated ambition for success. Hundreds upon hundreds of young physicians in this Southern land, of this type, did he thus take by the hand, and lead upwards and onwards in their struggling career, and they live to bless and honor his name, and are now acute mourners at his newly-made grave in Richmond.

His first wife died in 1872. He had six children as the issue of this marriage. He married in 1881, as his second wife, Mrs. Helen (Gray) Watson, daughter daughter of the late William Gray, Esq., a wealthy and influential tobacco manufacturer and exporter of Richmond, who still survives him, and by whom he has no surviving issue. He has a brother and two sisters living: Colonel Charles H. Manson, of Columbia, S. C., of prominet connection with the Southern rail road interests, and having legions of friends; Mrs. Eliza Sanger Eaten, of San Francisco, and Mrs. Mary Littlejohn, of New Orleans.

In his death a bright light of the profession has been exti nguished, and science looses, an able exemplar, exponent and apostle.

"Him we all mourn, his friends still heave the sigh,
And still the tear stands trembling in the eye,
His was each mild, each amiable art,
The gentlest manners, and the feeling heart,
Fair, simple truth, benevolence to all,
A generous warmth that glowed at friendship's call."

REPORT OF A CASE OF LAPAROTOMY FOR ACUTE INTESTINAL OBSTRUCTION.

By Joe Howell Way, M.D., Waynesville, N. C.

(Read before the Medical Society of the State of North Carolina, Fayetteville, May 8, 1888.)

On April 11th, at 12 o'clock, P. M., I was called to a house near the neighboring town of Clyde to meet in consultation Dr. H. N. Wells on the case of J. M., a farmer aged 31, of small slender build, and weighing only about 125 or 130 pounds, but a man who, as his neighbors expressed it, "thought himself very much of a man, and at the 'log-rollings' did twice as much as any other man of his size." On arriving I obtained from the Doctor the following history of his patients' illness: Early on the morning of the 10th, feeling about as well as usual, save some muscular soreness from having been at work for a few days previous in erecting a barn, he shouldered a heavy bag of grain, and, putting it on his horse, mounted and rode to the mill little more than a mile distant. While on the way he felt a "little sick at his stomach," and experienced an uneasy sensation in his bowels, which continued to grow worse. Soon after reaching the mill he felt chilly, had considerable abdominal pain and vomited freely the contents of his stomach. Going home half an hour later, his sufferings had so increased that his physician was summoned. The patient was still vomiting matter of a bilious nature and suffering most acute pain, which ranged from the umbilicus down to the right inguinal region. The diagnosis made was "bilious colic with constipation," and morphine was given *per orem* for immediate relief, and several small doses of rhubarb and calomel were left to be taken during the day. These were all given, and during the night three compound cathartic pills and two ounces of castor oil were also administered. Enemata were also resorted to several times, and at first a small amount of fecal matter was passed, but later the fluid returned untinged, and, like the cathartics, was without avail.

On the morning of the 11th, when visited by his physician, his condition was much worse, and despite the free use of opiates *per orem*, he had been unable to procure the least degree of sleep

or even momentary freedom from pain. His abdomen was very tympanitic, aud marked tenderness existed almost over its entire surface. He was extremely thirsty, fecal vomiting took place occasionally, and he had no motion from his bowels. Copious enemata were again administered, but with results as before. The patient now observed a slight swelling in the right inguinal region extending down over the spermatic cord into the scrotum just above the testicle. The attention of his physician was directed to this, and though not fully able to satisfy himself that it was a hernial protrusion, he practiced the *taxis* for sometime with the result of almost entirely reducing the swelling. A temporary truss was improvised and applied and a messenger despatched to procure a truss. Morphine for the relief of the pain, which was very great, and the liberal use of the above-mentioned cathartics, to which was added large doses of the sulphate of magnesia, was continued during the day, but no motion followed; the patient's sufferings increased, and his general condition grew worse.

At 12 P. M. on the 11th I visited him. His countenance was wan and wore a pinched expression suggestive of the intense suffering he had endured during the past two days. An unpleasant odor, as of fæces was noticed on entering the room, and on approaching the patient this was more strongly noticeable. This odor was caused by the exhalations of the patient's breath, which was very offensive from his having vomited fecal matters several times during the few preceding hours. His tongue was heavily coated, red at the tip and edges, and very tremulous when protruded. He was very thirsty and continually desiring water, which he drank with avidity. His pulse was 130, small and weak. His respirations were quickened and shallow; the condition of the abdomen giving rise to the most acute pain when efforts at deep inspiration were made. Singultus was present and had been for a few hours. The abdomen was greatly distended and tender over its entire surface, being markedly so at a point two inches above the right internal abdominal ring. Upon removing the truss, which did not fit very accurately, I observed a slight swelling running from the external ring down to a short distance above the right testicle. It was slightly tender and communicated a doughy sensation to the fingers when manipulated. No impulse on the patient's coughing was perceptible. Efforts to reduce the enlargement failed.

Arriving at the conclusion that we had to deal with a case of intestinal obstruction, I advised the bringing of the patient profoundly under the influence of morphia for a few hours, and in the event of failing to enable nature to relieve the obstruction, then an operation would be resorted to. Half a grain of morphia was given subcutaneously, and repeated twice at intervals of half an hour with the result of causing the patient to become more tranquil and sleep for a few hours. Returning to the patient several hours later, I found his general condition apparently much better, as the pain had been so slight that a repetition of the morphia had not been necessary. But the improvement, I was convinced, was only apparent, for the general symptoms indicated the beginning of a fatal collapse. Feeling certain that intestinal obstruction was present, but not being able to fully convince myself as to whether it existed alone at the abdominal rings or also at the site in the abdomen two inches above the internal ring, which was so acutely sensitive and painful, I advised an exploratory incision over the site of the abdominal rings, intending, if necessary, to extend it upwards to the sensitive spot. This being agreed to, with the kindly assistance of Drs. Wells and Webb, I proceeded to operate. The patient was placed under the influence of chloroform and further efforts were made to reduce the tumor, but without success. The abdomen and pubes were thoroughly cleansed and the right pubic region shaved. Then, pinching up a fold of the integument, it was transfixed with the knife, and an incision three inches in length and directed upwards and outwards was made over the inguinal canal. The various coverings were then carefully gone through until the peritoneum was reached. This was opened and about three or four fluid drachms of dark grumous fluid with an offensive odor ran out. A fold of the omentum was found protruding from the external ring. It was of a dark purple color, and emitted an offensive odor. The fibres of the external ring were freely divided, the omentum was pulled down until healthy tissue was reached, a ligature was placed around this *en masse*, and the diseased portion removed. Examining the internal ring, I found its margins torn so that it was quite fatulous; but to my surprise the omental pedicle and a small loop of bowel which had come through the internal ring, but had not passed out the external ring, would not return to the abdominal cavity. On noting the intense degree of congestion the loop of

intestine presented, and, finding no cause of constriction at the internal ring, I became fully convinced that the source of obstruction was to be found higher up in the abdominal cavity, and accordingly I then continued my incision upwards until the point which the patient had complained of as being so sensitive was reached. Now, by withdrawing the bowel partly with one hand and passing the index-finger of the other deeply into the abdominal cavity, I discovered the source of the obstruction to be a ligamentous band under which the intestine seemed to have passed and been unable to return. This was divided partly with a probe-pointed knife and partly by tearing it with my finger and the band released. The site of the operation was thoroughly irrigated with a hot carbolized solution, a rubber drainage-tube passed deep into the abdominal cavity, and the edges of the wound brought together by two sets of silk sutures, a superficial and a deep. An iodoform dressing was then applied. The patient reacted from the operation finely, and an hour afterwards his bowels began moving. Between fifteen and twenty watery, feculent discharges took place in the next four hours, when it was deemed best to restrain further intestinal movements by hypodermatics of morphia. From this time on the patient's progress toward recovery was rapid. His temperature for one or two days only was above 101° F. His appetite was excellent all the time from the morning after the operation, though for some days I limited him to fluid nourishment. On the eighth day the drainage-tube and the stitches were removed.

REPORT OF THE SECTION OF OBSTETRICS AND GYNECOLGGY.

By S. T. Nicholson, M.D., Chairman, Washington, N. C.

(Read before the Medical Society of the State of North Carolina, at Fayetteville, May 8, 1888.)

Mr. President and Gentlemen of the Medical Society of the State of North Carolina:

Fully appreciating the great importance of the subject for that Section of which I have been chosen Chairman, I cannot but feel my inability when I reflect upon its weighty responsibility.

In making up my report I shall take under consideration that most dreaded foe of every obstetrician, viz: puerperal fever.

I think it entirely unnecessary to consume time in detailing the earlier views upon this subject, wearying you with the oft-repeated teachings of Hippocrates, Galen, Avicenna, Puzos, Fountaine, Bichat and others, but shall confine myself to more recent advances and my own statistics.

All recorded statistics before the adoption of certain rules go to prove the mortality in this terrible disease to have been very large, and during epidemical outbreaks in London, Paris, Edinburgh, Berlin and other places it has been appalling, in some instances necessitated the closing of infirmaries, nearly every patient dying. I am here impressed with the truthfulness of these words of Ramsbotham: "In the whole range of scientific medicine there is no subject more difficult to treat than that of puerperal fever." Doleris positively assures us that upon repeated trials, especially after a chill, he has never failed to find micrococci in the blood of puerperal fever patients. He found the prevailing pathogenic organisms to consist of bacilli or rods, and micrococci or round bacteria, in the varieties of micrococci, simple points, diplococci, double points and chains or wreaths. The bacilli or rods he regarded as the source of acute, rapid septicæmia, while pus production was associated with the multiplication of bacteria, especially the diplococci. It has been proven by the experiments of Koch and Gutman upon animals that death may occur by the rapid absorption of a chemical poison (sepsin) developed in a putrefying fluid independently of bacteria. The anatomical demonstration of

putrid intoxication in puerperal women has not yet been furnished but it is quite probable that similar cases do occur when retained coagula or portions of placenta undergo putrefaction, producing the speedy deaths sometimes observed.

Puerperal fever is, indeed, puerperal septicæmia. I believe this is generally agreed upon by modern writers. The experiments of Haussmann, D'Espine, Schuller and others demonstrate the fact that septic poisons are capable of producing the lesions ordinarily associated with puerperal fever, such as peritonitis, metritis, perimetritis, phlebitis, etc., refuting the theory of the so-called "localist." Septicæmia is characterized by the invariable presence in the organ infected of those minute bodies generally termed bacteria, which possess the capacity of self-multiplication in the tissues.

It is now a settled question that the microspores of septicæmia are the sole source of infection; the experiments conducted after the methods as suggested by Koch have only been partially successful, but earlier experiments were attended with positive results, and more recently Pasteur and Doleris have furnished confirmatory evidence.

Koch and Doleris have microscopically demonstrated the fact that the action of bacilli differs very materially in the blood from that of the round bacteria. So soon as the latter comes in contact with the red corpuscles, these corpuscles are seen to stick together and form smaller or larger clots in the blood, too large to pass through the capillary network, are arrested in the smaller vessels, where reproduction takes place, with migration to neighboring vessels and tissues; the red corpuscles undergoing rapid changes and as rapidly disappearing, bringing about an almost colorless condition of the blood. The changes produced by bacilli in the blood are quite different, the red corpuscles are not diminished in number, but undergo various stages of deformation; no sticking together or clot formation is observed, they seem to attack the white corpuscles mostly and bring about their rapid destruction; blood becoming dark in color, their presence characterized by ecchymosis, small apoplectic effusions, and by the absence of pus formation. Bacilli appear to make their transit by the blood-vessels, and not by the lymphatics (the channel through which bacteria enter) they do it; it is thought they make their entrance into the blood-vessels by virtue of their penetrative power, very much weakening the vessels.

It is very rare in puerperal fever not to find both forms present, the predominant form determining the general character of the symptoms. We must agree with Prof. Lusk and others, and admit, in the present state of our scientific knowledge, that a limited number of febrile and inflammatory diseases do occur in the puerperal state, the bacterial origin of which can be fairly questioned; cases in which certain influences are suddenly brought to bear upon the nervous system, and in turn that influence is reflected, thereby arresting (wholly or in part) the functional activity of the organs of elimination. There are also cases of great susceptibility or predisposition, when the exciting cause is only necessary for development.

As I have before stated, it has been satisfactorily proved by scientific gentlemen, and generally accepted by the profession, that the microspores of septicæmia are the sole source of infection. For the organism to become infected authorities tell us there must be a solution of continuity (which exist after every parturition) and that the germs must come in contact with the broken surface.

Dr. Playfair and others maintain the position that puerperal fever is sometimes caused by the contaminating influence of sewer gas. Tarnier holds that any such poison can enter by the lungs or digestive tract, and produce the same. Accepting these as facts, reveals as our strength the great arm of prophylaxis in adhering strictly to the rules of hygiene and the system of antisepticism.

Admitting that there are cases the bacterial origin of which can be questioned; admitting auto-infection, which was even recognized by Hippocrates, for a moment, "let us unroll the dusty pages of time," look back upon the past, when London, Paris, Edinburgh, Leeds, Lyons, Berlin, Vienna and other places were from time to time draped in mourning at the loss they sustained by the ravages of this uncontrolable terror when the great medical brain of the world was in consternation and confusion. Onward was its march, unchecked and uncontrolled by the medical science, when Semmelweis discovered and turned light upon the most prolific source of infection which is now the foundation of our present system of antisepsis in puerperal septicæmia. It may not be unprofitable to here determine what is the present actual condition of this system, and, setting aside false theories and unstable hypothesis, to ascertain its exact relation to our every-day work; for, after all, it must come

to this important question: What help does antisepticism afford as a prophylaxis in puerperal septicæmia? No honest or impartial observer can fail to recognize with gratitude the magnificent results and the grand success which have attended the antiseptic system as a preventive of puerperal diseases—results which have brought about its adoption throughout the civilized portions of the earth, reducing the percentage of mortality from as high as seventy to as low as one-half of one per cent. Notwithstanding this triumphant record, we find some losing appreciation for this brilliant achievement. For details I cannot do better than refer you to a report by W. S. Playfair to the British Medical Association, an extract of which will be found in the 1st vol., 55th page, *International Journal of Surgery and Antiseptics*, entitled "Antiseptic Rulings for Monthly Nurses."

With our present knowledge we can almost say—no pathogenic organisms, no puerperal fever. Then let us use every means in our power to avoid contamination.

During seven years of private practice in the town of Washington, N. C., I have had two hundred and seven cases of parturition; of this number four had puerperal septicæmia, six had puerperal convulsions, one delivered with forceps and one craniotomy. Nothing occurred to interrupt the quiet repose and speedy recovery of both mother and child in the forceps delivery and the mother in the case of the craniotomy, nor was there any phenomenal occurrence in either of the six cases of convulsions, each case being promptly relieved by venesection, made good recoveries. The four cases of puerperal septicæmia, for convenience of description, I will give in detail.

Case 1.—I was called on the 31st July, 1885, to Mrs. M., age 26, a robust, healthy woman, and delivered her of her first child; she had, however, aborted at the sixth week, eleven months prior to this time. Nothing unnatural occurred during this labor, placenta was delivered intact by Credé's method, uterus contracted well and I left her very comfortable; upon calling the next morning, to my astonishment I found her pulse 120, temperature 102, complexion looked a little thick, but no pain or suppression of lochia. Called at 5 P. M., found her temperature 103, pulse 130, lochia partially suppressed, not offensive, little or no pain. I called at 8 A. M. next day (1st August) and found her looking worn and anxious, expressed

herself as having passed a bad night, temperature 103½, pulse 140, sick stomach, entire loss of appetite and suppression of lochia, some tympanites present, tongue thickly coated, a dirty whitish color and inclined to be dry. These symptoms continued and gradually grew worse, temperature remaining continuously high and reaching 105° at one time, pulse grew more rapid and weaker, vomiting became persistent, uncontrolable and of a dark color, tympanites was increased, some tenderness over abdomen, strong tendency to constipation throughout, tongue became dark and dry. She died on the 4th August from exhaustion, remaining conscious to within a short time of her death.

Case 2.—Mrs. W., age 22, stout, healthy woman, of healthy parentage, she had, however, been troubled with chills and fevers six or eight weeks prior to this time. December 24th, 1886 (nearly eighteen months since Case 1) I was called and delivered her of her first child, a fine boy, at full term. It was a normal labor, placenta was expelled intact. I left her at the end of one hour doing well—uterus well contracted. I called the next morning and was shocked to find her temperature 102, pulse 120. This case progressed in an uninterrupted course, with all the symptoms of Case 1, of the same duration, and, I am pained to say, of the same fatal termination.

My treatment in both these cases was the same. I began by first giving a laxative dose of the mild chloride mercury, after which I relied on castor oil and spirits turpentine, and later in the disease I had to rely entirely upon warm water enemata, as the stomach would not retain anything. As a sedative I gave gtt. ij of the tincture of aconite root every one to two hours; later I used tincture of digitalis gtt. x every two to three hours. Both of these tinctures were standard and I believe them genuine, but they failed to have the desired effect in both instances, neither the pulse nor temperature were reduced, though I am unable to say how much higher they might have gone, producing death sooner.

I used turpentine stupes to abdomen and intra-uterine injections night and morning for two days of a 3 per cent. solution of carbolic acid, but seeing no benefit from it, discontinued them. Vaginal injections of the same were used three or four times a day up to the day preceding death.

Warburg's tincture and quinine were given as long as the stomach would tolerate them, and afterwards quinine was given per rectum

grs. xxv night and morning. Stimulants and nourishments were administered both by the mouth and rectum.

I regard these as typical cases of puerperal septicæmia, but with my closest observation in both, I failed to find anything to lead me to the belief that they were auto-genetic. I am satisfied the uterus was thoroughly emptied and well contracted; there was never at any time the least offensive discharge, and the uterine injections failed to abate the fever. The privilege of post-mortem examination was denied. As to myself as a medium I had not been in any case of puerperal septicæmia, or any case in which I was brought in contact with septic matter whatever, nor was there erysipelas, scarlet fever or diphtheria in town. As is my custom, the requisites of cleanliness and antisepsis were used; washed my hands first with soap and water, then with a carbolized wash, and used carbolized vaseline as a lubricant. In view of these facts, I fail to see any chance of contamination from me. I am therefore persuaded that these cases must have found their origin in the atmosphere, not from sewer-gas, for there was none in communication with either patient, but from some similar atmospheric poison; the hygienic surroundings of both patients were very poor, Case 1 occurring in a small, crowded house, situated in the lowest part of the town, during the hottest part of August. At the same time there were other cases in town, in the hands of other physicians, with which I had no connection whatever, in which death occurred within a week after delivery, the origin being very obscure. Dr. Playfair reports three fatal cases which he attributes to sewer-gas, and to establish his opinion, he states that he had similar cases, with all their severe symptoms, which, upon being removed from that locality, made immediate improvement and recovered. He also cites Frankenhauser's report of fatal cases under like circumstances.

Case 3.—Mrs. P., a well developed woman, age 25. I was called on the 15th of September, 1887, found her in second stage of labor. Her labor was hard and tedious, but she was, however, delivered in three or four hours of a very large still-born child, weighing 14 pounds. Placenta was slightly attached, post-partum hemorrhage was considerable. Satisfying myself that the uterus was thoroughly emptied and well contracted at the end of one and a half hours after delivery, temperature being 98 and pulse 76, I left to call again the next morning.

September 16, 8 A. M.—Not so much to my surprise, but greatly to my discomfort I found her temperature 101½ and her pulse 116, complexion muddy, tongue thickly coated white, some tenderness over the abdomen. At 6 P. M. temperature 102½, pulse 124, lochia partially suppressed. At 8 A. M. on the 17th temperature 103½, pulse 135, sick stomach, complexion still thick and sallow, slight pains, some tympanites, lochia almost entirely suppressed, loss of appetite and strong tendency to constipation. I saw plainly the death of my patient approaching; something must be done and that quickly, or she would soon share the sad fate of the previous cases. So far I had pursued the same treatment under which they died. My experience with veratrum viride in the past gave me no comfort, but after serious reflection and consideration, I determined to make the following changes in my treatment: to discontinue intra-uterine injections, but continue the vaginal and to use bichloride mercury solution, 1 to 3.000, 3 or 4 times a day, instead of carbolic acid give mild chloride mercury, alternated with castor oil and spirits of turpentine as a laxative, and last, but not least, to narcotise her thoroughly. Whereupon I gave her heroic doses of morphine and repeated them until her hurried respirations were reduced to 12 per minute, when she fell into a quiet sleep and gentle perspiration, I must say to my great joy and comfort. On calling at 9 P. M. I found her resting quietly and expressed herself as feeling better, temperature 102, pulse 120. After seeing that she was made as comfortable as possible, I gave full directions to her husband for the night and left, to return the next morning.

18th, 8 A. M.—She had spent a night of quiet and sleep, more thoroughly under the influence of narcotic, temperature 101, pulse 112, bowels had acted twice in the past 24 hours, tongue looked better, and sick stomach was relieved; discontinued aconite and it was not necessary to give any more; stopped morphine, but continued Warburg's tincture. 6 P. M.—She had felt better in the forenoon and had taken some nourishment with relish, but not feeling so well at this time, temperature 102½, pulse 124, some tympanitis, increased respirations indicated the demand for more morphine; I administered it at once.

19th, 8 A. M.—She had rested comparatively well through the night, temperature 101, pulse 114, bowels had acted once, complexion cleared up somewhat, tongue looked better and tympanites about gone. I do not think it necessary to consume time in following the details of this case through each day, suffice it to say the treatment

was continued accordingly as the symptoms required, and she was convalescent in thirty days.

Case 4.—I was called to Mrs. T., multapara, age 27, a strong, healthy woman, on 22d December, 1887. I found the os thoroughly dilated; I ruptured the membranes and she gave birth, in half an hour, to a fine, well-developed child; placenta was expelled in a few minutes intact, uterus contracted well, no abnormal flow, pulse, temperature, tongue and skin were normal. She was in what I considered a first-class condition. I left her feeling satisfied she would make a good recovery. When I called the next morning to my utter astonishment I found her with a temperature of 102, pulse 120, tongue coated white, tenderness over abdomen and considerable pain.

The symptoms, course, treatment and duration, with the same favorable termination, was in every respect the same as Case 3, except that intra-uterine injections were omitted.

Now, to what shall I attribute my success in Cases 3 and 4? I cannot give time and space here to the opinions of scores of authorities for and against calomel, but I attribute a great part of my success in these cases to that meritorious mineral. To morphine is due great credit. I appreciate the fact of the superiority of the bichloride solution over carbolic acid as an injection, and must not fail to give to the omission of intra-uterine injections in these cases due credit. Calomel, I believe, not only serves as the most efficient laxative and germicide, but serves the good purpose of counteracting the retarded functional activity of the organs of elimination already existing and increased by the morphine, therefore doing away with the objectionable effect of the morphine. I think the intra-uterine injections should never be used unless we have good reasons to believe we are dealing with auto-infection or the temperature rises very high. By an abundance of practical experience the fact is established beyond dispute that the closest observance of the rules of hygiene and antisepsis is the only known reliance with which to mitigate the death-rate in puerperal fever. The responsibility of an accoucheur begins so soon as he is notified that his services will be expected; it then becomes his absolute duty to at once see to the sanitary surroundings of his patients, and do all in his power to perfect them, and in every case adhere strictly to the rules of the antiseptic system. It behooves us to leave nothing undone that can be done to fortify our patients against contact with contaminating influences, and when we have done all that we can do, discharged our full duty, we will enjoy a happy consciousness of the fact and be rewarded with success.

Lost of 1888

LIST OF MEMBERS

In the Order in which they signed Constitution.

(Those marked * were present at the meeting held in Fayetteville, May, 1888.)

[NOTE.—Any person noting any errors or omissions in this roster, will confer a favor if they will write a full correction of such mistakes to the Secretary of the Society at Tarboro, N. C., or the Editors of the NORTH CAROLINA MEDICAL JOURNAL at Wilmington, N. C.

PUBLICATION COMMITTEE.]

NAME.	P. O. ADDRESS.	Signed Constitution.
N J Pittman	Tarboro	1850
*S S Satchwell	Rocky Point	1850
Robt Gibbon	Charlotte	1851
W G Thomas	Wilmington	1852
*A B Pierce	Weldon	1852
Allman Holmes	Clinton	1852
E A Anderson	Wilmington	1852
J J Summerell	Salisbury	1855
Peter E Hines	Raleigh	1855
J G Ramsay	Rowan Mills	1855
R H Winborne	Edenton	1857
*Geo A Foote	Warrenton	1858
Eugene Grissom	Raleigh	1859
R L Payne	Lexington	1859
F M Rountree	Kinston	1859
*W J Jones	Goldsboro	1860
Chas J O'Hagan	Greenville	1860
J W Jones	Tarboro	1860
*J K Ruffin	Wilson	1860
Wm R Wood	Scotland Neck	1867
P A Barrier	Mt Pleasant	1867
*Thos F Wood	Wilmington	1867
Geo L Kirby	Goldsboro	1867
P S Peteway	Enfield	1867
J F Shaffner	Salem	1867
*W T Cheatham	Henderson	1868
Elisha Porter	Rocky Point	1868
F J Haywood	Raleigh	1868
B P Alston	Henderson	1868
G G Smith	Concord	1869
*D N Patterson	Mangum	1869
L L Staton	Tarboro	1869
*H T Bahnson	Salem	1869
W W Lane	Wilmington	1870
Chas Duffy, Jr	Newbern	1870
Wm J Love	Wilmington	1870
*H O Hyatt	Kinston	1870
T C Powell	Rocky Mt	1867
Jas McKee	Raleigh	1870
Willis Alston	Littleton	1870
*W J H Bellamy	Wilmington	1870
*Walter Brodie	Wilson	1870
J L Knight	Tarboro	1870
*W T Bunnett	Burgaw	1870
W I Royster	Raleigh	1871
*Geo Gillett Thomas	Wilmington	1871
John McDonald	Washington	1872
Francis Duffy	Newbern	1872
*A G Carr	Durham	1873
J M Hadley	LaGrange	1873
J W Vick	Selma	1873
P L Murphy	Morganton	1873
Jos Graham	Charlotte	1874
W H Lilly	Concord	1874
*T D Haigh	Fayetteville	1874
*L J Picot	Littleton	1875
D N Sills	Castalia	1875
W J Cooke	Franklinton	1875
*F J Thorpe	Rocky Mount	1875
W H Whitehead	Battleboro	1875
*R H Speight	Tarboro	1875
H G Land	Poplar Branch	1875
W C McDuffie	Fayetteville	1876
Henry Tull	Kinston	1876
A V Budd	Lockville	1876
*J W McNeill	Fayetteville	1876
J D McMillan	Lumberton	1876
W H McKinnon	Fayetteville	1876
J D Roberts	Goldsboro	1877
*Geo W Long	Graham	1877
Geo W Graham	Charlotte	1877
N S Siewers	Salem	1877
W P Mallett	Chapel Hill	1877
*Ric'd H Lewis	Raleigh	1877
F W Potter	Wilmington	1778
J F Harrell	Whiteville	1877
A M Lee	Clinton	1877
J R McClelland	Mooresville	1878
*R J Noble	Selma	1878
*W H H Cobb	Goldsboro	1878
J H Tucker	Henderson	1878
E H Hornaday	Willow Green	1878
*P B Barringer	Davidson Coll	1878
I W Faison	Mt Olive	1878
J A Pollock	Kinston	1878
Hubert Haywood	Raleigh	1879
J M Covington	Rockingham	1879
C E Bradsher	Durham	1879
S W Stevenson	Mooresville	1879
H T Trantham	Salisbury	1879
*W P Beall	Greensboro	1879
A D McDonald	Wilmington	1879
S B Jones	Charlotte	1879
J J Cox	New Garden	1879
D M Prince	Laurinburg	1879
J A Sexton	Raleigh	1879
S B Evans	Statesville	1879
John C Walton	Prosperity Hill	1879
J T Sledge	Greeneville	1879
R A Hargrave	Robersonville	1879
W L Abernathy	Hickory	1879
*Julian M Baker	Tarboro	1879
T E Balsley	Riedsville	1879
*Thos E Anderson	Statesville	1879
J M Stansill	Rockinham	1879
W K Anders	Gravel Hill	1880
Thomas Hill	Goldsboro	1880
Ed de la Itive King	Goldsboro	1880

NAME.	P. O. ADDRESS.	Signed Constitution.
J C Shepard	Scotts Hill	1880
*W C. Galloway	Snow Hill	1880
T W Harris	Chapel Hill	1880
*T S Burbank	Wilmington	1880
R W Thomas, Sr	Thomasville	1879
R H Adams	Gastonia	1880
L W Hunter	Charlotte	1880
*C M Poole	Craven	1880
J L Nicholson	Richlands	1880
D B Frontis	Wadesboro	1880
*A W Knox	Raleigh	1880
John Whitehead	Salisbury	1880
S J Montague	Winston	1880
*A B Huntley	Wadesboro	1880
Jno A Collins	Enfield	1880
*W P Mercer	Toisnot	1880
B F Whiteside	Hickory	1881
*W L Crump	South River	1881
S P Waldo	Cary	1881
D J Cain	Asheville	1881
J M Lyle	Franklin	1881
J A Reagan	Weaverville	1881
R S Baynes	Bushy Fork	1881
T B Robertson	Neuse	1881
*H W Lilly	Fayetteville	1881
G W Fletcher	Fletcher P. O	1881
S H Lyle	Franklin	1881
J Anderson	Calahan	1881
E Crowell	Lincolnton	1881
*M H Fletcher	Shufordville	1881
Thos M Jordan	Hookerton	1881
W L Hilliard	Asheville	1881
C Winston	Franklinton	1881
*R L Payne, Jr	Lexington	1881
T F Meisenheimer	Morven	1881
T F Pharr	Concord	1881
W D Hilliard	Asheville	1881
J W Moose	Mt Pleasant	1881
J H Faison	Faison	1881
W L Reagan	Ivy	1881
H. B. Weaver	Weaverville	1881
A J Battle	Earpsboro	1881
J H Williams	Asheville	1881
J R Irwin	Alexandriana	1882
A R Wilson	Peekham	1882
*K P Battle, Jr	Raleigh	1882
H B Furgerson	Halifax	1882
J T Strickland	Thomasville	1882
J B Gunter	Bingham Scho'l	1882
*Geo S Lloyd	Tarboro	1882
*R S Young	Concord	1882
R A Smith	Goldsboro	1882
C A Meisenheimer	Pioneer Mills	1882
W P Whittington	Burnsville	1882
C F Anderson	Mocksville	1882
W W Faison	Goldsboro	1883
W O McDowell	Scotland Neck	1883
N H Street	Pollocksville	1883
J A Stevens	Clinton	1883
T S Royster	Williamsboro	1883
I M Taylor	Morganton	1883
J M Hodges	Mt Olive	1883
S H Rogers	Raleigh	1883
*W L Hudson	Hawley's Store	1883
Oscar Gregory	Oxford	1883
*F R Harris	Henderson	1883
*H H Whitaker	Old Sparta	1883
N P Bodie	Scotland Neck	1883
G C Edwards	Hookerton	1883
E M Summerell	Salisbury	1883
*K M Ferguson	Cameron	1883
D B McNeill	Shallotte	1883
H T Bass	Tarboro	1883
*N M McLean	Gibson Station	1883
J H Anderson	Tarboro	1883
F C James	Bethel,	1883
J C Braswell	Whitakers	1883
*G L Wimberley, Jr	Rocky Mount	1883
B L Long	Hamilton	1883
H I Clark	"	1883
W G Freeman	Murfresboro	1884
W C Whitfield	Sladesville	1884
J A Burroughs	Asheville	1884
*F M Brown	Greenville	1884
J W Long	Randleman	1884
M P Perry	Macon	1884
*G J Robinson	Smithfield	1884
M R Adams	Statesville	1884
*G T Sikes	Grissom	1884
W B Pritchard	Faison	1884
*J M Manning	Durham	1884
F T Fuller	Raleigh	1884
*H P Murray	Plymouth	1884
*V A Whitney	Norwood	1884
J B Beckwith	Smithfield	1884
G W Purefoy	Asheville	1884
M H Futrell	Woodland	1884
B F McMillan	Plainview	1884
*J E Grimsley	Snow Hill	1884
R F Gray	Winston	1884
W J Jones, Sr	Goldsboro	1884
J P Smallwood	Lewiston	1885
Thos A Vicker	Durham	1885
W N Hicks	Fish Dam	1885
S B Woods	Bell's Ferry	1885
L P Sorrell	Kelvin Grove	1885
J C Whiteside	Morganton	1885
W H Wilson	Dallas	1885
L M Archey	Concord	1885
C E Adams	Gastonia	1885
J H Baird	Briggsville	1885
A W Fitts	Tyro Shops	1885
*W E Powell	Castoria	1885
Thos J Jones	Lansing	1885
J B Powers	Wake Forest	1885
F W Hughes	Newbern	1885
L. L. Sasser	Smithfield	1885
L W Battle	Durham	1885
E W Pugh	Windsor	1885
*W L Best	Johnson's Mill	1885
S D Booth	Oxford	1885
J H Powell	Goldsboro	1885
*J H Benton	Newton Grove	1885
Henry Sloan	Lisbon	1885
W P Kenedy	Warsaw	1885
Jos Brank	Weaverville	1885
*A P Dixon	Vollers	1885
J S Griffin	Lewiston	1885
Patrick Booth	Knap of Reeds	1885
R J Porter	Youngsville	1885
R T Spencer	Chalk Level	1885
John B Carr	Old Sparta	1885
W T Spruill	Youngsville	1885
J A Hodges	Fayettville	1885
D N Dalton	Winston	1885
Annie L. Alexander	Cowan's Ford	1885
John O Brien	Halifax	1885
*J T Nicholson	Bath	1885
J M Hays	Barnitz	1885
D B Reinhart	Thomasville	1885
A T Cotten	Morrisville	1885
T R Harding	Huntsville	1885

Name.	P. O. Address.	Signed Constitution.
J M Kirkpatrick	LaGrange	1885
C H Bradsher	Hurdle's Mills	1885
A B Roberson	Chapel Hill	1885
A D York	Morrisville	1885
W P Small	Washington	1885
*J P McKay	Averasboro	1885
J T Shubrick	Winton	1885
S L Montgomery	Monroe	1885
J S Bell	Matthews	1885
K Leggett	Palmyra	1885
W W Pharr	Query's	1885
J C Perry	Newbegun	1885
*J M Faison	Faison	1885
*J W McGee	Raleigh	1885
A W Dorsett	Bethany	1885
D G Caldwell	Tulin	1885
J M Emmett	Oxford	1885
*W B Crisp	Ciffa	1885
R B Ellis	Raleigh	1885
W T Herndon	Morrisville	1885
*Gilbert McLeod	Carthage	1885
J L McMillan	Red Spring	1885
J M O'Kelly	Williams Mills	1885
B G Webb	Asheville	1885
*E P Williams	Cedar Creek	1885
*W T Pate	Laurel Hill	1885
*R A Whitaker	Trenton	1885
*J I Coleman	Hurdle's Mills	1885
J A Wise	Red Mountain	1885
M F Fox	Greensboro	1885
*D T Tayloe	Washington	1885
*Zeno Brown	Greenville	1885
F W Ritter	Shiloh	1885
S R Hardee	Moriah	1885
D Lucas	Enfield	1885
Mayland Bolton	Rich Square	1885
A A Maynard	Clayton	1885
*W E Turlington	Benson	1885
A P Keever	Keeversville	1885
*S T Nicholson	Washington	1885
*Fleet J Cooper	Hives	1886
T C Bullock	Blockers	1886
C J Mattock	Pollocksville	1886
H C Jackson	Pittsboro	1886
*G H Dodd	Clayton	1886
*A W Hamer	Laurinburg	1886
*D B Zollicoffer	Garysburg	1886
E M Littlejohn	Thomasville	1886
E H Bobbitt	Palm Spg's, Va.	1886
U S Hassell	Jamesville	1886
J M BoyEtte	Little Riv. Acad	1886
S P Sparrow	Sladesville	1886
E Rose Dorsett	Salisbury	1886
R W Thomas	Durham	1886
Edward Clark	Middleton	1886
B S Utley	Holly Springs	1886
*R A Whitaker	Trenton	1886
J L Manney	Beaufort	1886
Chas Duffy	Catherine Lake	1886
*M W Harper	Dunn	1886
*H T Chapin	Pittsboro	1886
*H H Harriss	Wake Forest	1886
S C McClure	Statesville	1886
W H Ward	Plymouth	1886
*M E Robinson	Goldsboro	1886
O D King	Wilmington	1887
H L Abernathy	Hickory	1887
W D Pemberton	Big Lick	1887
A J Hoover	Lincolnton	1887
J H McDuffie	Keyser	1887
S S Daniel	Winton	1887
A W Goodwin	Raleigh	1887
W H Bagwell	Pactolus	1887
H W Lewis	Jackson	1887
*Henry H Dodson	Milton	1887
S W Battle, U S N	Asheville	1887
J F Beall	Linwood	1887
W L Crouse	Crouse	1887
Joe Hill	Arcadia	1887
J E Caldwell	Caldwell	1887
*J Howell Way	Waynesville	1887
*R H Stancell	Margarettsville	1887
*R A Patterson	Aurelian Spgs.	1887
J McDeArmon	Mint Hill	1887
J G Christian	Mt Gilead	1887
J H Bingham	Garrison	1887
R J Brevard	Charlotte	1887
W B Henderson	Hopewell	1887
D O'Donoghue	Charlotte	1887
D McBryde	Maxton	1887
E C Register	Enselville	1887
R W Tate	Greensboro	1887
*Jas M Dunlap	Ansonville	1887
*J. D Croom	Maxton	1887
W C Ramsay	Monroe	1887
J A Avery	Pineville	1887
D C Parris	Hillsboro	1887
J M Lawing	Lincolnton	1887
R W Winborne	Barnitz	1887
W P Craven	Martindale	1887
*W S Anderson	Wilson	1888
*G E Ashcraft	Monroe	1888
*J M Belk	Morven	1888
*J G Bradnax	Greensboro	1888
*J E Brothers	Stantonsburg	1888
*L G Broughton	Reidsville	1888
*A Cheatham	Henderson	1888
*B T Cox	Greenville	1888
*D S Ellis	Woodland	1888
*J A Faison	Mt Olive	1888
*T T Ferree	Brown Summit	1888
*E B Goelet	Brevard	1888
*J C Grady	Seven Springs	1888
*J A Griffin	Godwin	1888
*W B Harrell	Dunn	1888
*A S Harrison	Ringwood	1888
*S A Henley	Ashboro	1888
*N B Herring	Wilson	1888
*W Josephus Jones	Clayton	1888
*C H Lewis	Farmers	1888
*H W Lucas	Black Creek	1888
*W. J Lumsden	Elizabeth City	1888
*Jenness Morrill	Farmville	1888
*H B Marriatt	Battleboro	1888
*F T Meriweather	Asheville	1888
*E H McCullers	Clayton	1888
*A McDougald	Cum'land Mills	1888
*Geo H Moran	Morganton	1888
*Jas W McGee, Jr	Raleigh	1888
*D C Moore	White's Store	1888
*A McKinnon	Lumber Bridge	1888
*W R Monroe	Madison	1888
*J R Pearsall	Manchester	1888
*J C Robertson	Clayton	1888
*C W Sawyer	Elizabeth City	1888
*Duncan Smith	Athens	1888
*Duncan Sinclair	Plain View	1888
*Jas Spicer	Goldsboro	1888
*M M Tatum	Winnie	1888
*C B Woodley	Trenton	1888
*A R Zollicoffer	Weldon	1888
*Thos Stamps	Milton	1888
*Jno H Jenkins	Dallas	1888
*H Stokes Lott	Winston	1888
*T P Wynn	Tarboro	1888

HONORARY MEMBERS.

Dr. J. D. Bellamy, Wilmington, N. C.
" R. Dillard, Edenton, N. C.
Dr. W. T. Howard, Baltimore, Md.
" Hunter McGuire, Richmond, Va.
Prof. L. A. Savre, M. D. New York.